Konica

7055

SERVICE HANDBOOK

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KONICA CORPORATION
TECHNOLOGY SUPPORT CENTER
TOKYO JAPAN

KCS705510

■ SERVICE HANDBOOK NOTICE

The Konica 7055 Service handbook has just been issued.
This model is a derivative of the Konica 7065.
Also, this service handbook includes only the differences between the 7065 and 7055, and the items that have been changed. Refer to the 7065 Service Handbook for items not included in this new service handbook.

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1.LIST OF DIFFERENCE
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SAFETY AND IMPORTANT WARNING ITEMS

Read carefully the Safety and Important Warning Items described below to understand them before doing service work.

IMPORTANT NOTICE

Because of possible hazards to an inexperienced person servicing this equipment, as well as the risk of damage to the equipment, Konica Corporation, strongly recommends that all servicing be performed only by Konica-trained service technicians.

Changes may have been made to this equipment to improve its performance after this service handbook was printed. Accordingly, Konica Corporation, makes no representations or warranties, either expressed or implied, that the information contained in this service handbook is complete or accurate. It is understood that the user of this service handbook must assume all risks or personal injury and/or damage to the equipment while servicing the equipment for which this service handbook is intended.
Therefore, this Service Handbook must be read carefully before doing service work both in the course of the technical training and even after that, for keeping the correct maintenance and control of the copying machine. Keep the Service Handbook also for the future service. When it is impossible to read the description about safety and warning (due to contamination or tear), the relevant page should be replaced.

DESCRIPTION ITEMS FOR DANGER, WARNING AND CAUTION

In this Service Handbook, each of three expressions, "⚠ DANGER", "⚠ WARNING" and "⚠ CAUTION" is defined as follows together with a symbol mark to be used in a limited meaning.
When servicing, the relevant works (disassembling, assembling, adjustment, repair and maintenance) need to be conducted with utmost care.

⚠ DANGER: **Actions having a high possibility of suffering death or serious wound**
⚠ WARNING: **Actions having a possibility of suffering death or serious wound**
⚠ CAUTION: **Actions having a possibility of suffering a slight wound, medium trouble and material damage**

IMPORTANT WARNING ITEMS

[1] UNAUTHORIZED MODIFICATIONS

Konica copiers have gained a reputation for being reliable products. This has been attained by a combination of outstanding design and a knowledgeable service force.

The design of the copier is extremely important. It is the design process that determines tolerances and safety margins for mechanical, electrical, and electronic aspects. It is not reasonable to expect individuals not involved in product engineering to know what effect may be caused by altering any aspect of the machine’s design. Such changes have the potential of degrading product performance and reducing safety margins.

For these reasons, *installation of any modification not specifically authorized by Konica Corporation, is strictly prohibited.*

The following list of prohibited actions is not all-inclusive, but demonstrates the intent of this policy.

⚠ **CAUTION:**

(1) Using an extension cord or any unauthorized power cord adapter.
(2) Using any fuse that is not of a type specified by Konica.
(3) Using wire, paper clips, solder, etc., to replace or eliminate any fuse (including temperature fuses).
(4) Removing (except for replacement) any air filter.
(5) Defeating the operation of relays by any means (such as wedging paper between contacts).
(6) Causing the machine to operate in a fashion other than as it was designed.
(7) Making any change which might have a chance of defeating built-in safety features.
(8) Using any unspecified replacement parts.

[2] GENERAL SAFETY GUIDELINES

This copier has been examined in accordance with the laws pertaining to various product safety regulations prior to leaving the manufacturing facility to protect the operators and service personnel from injury. However, as with any operating devise, components will break down through the wear-and-tear of everyday use, as will additional safety discrepancies be discovered.
For this reason, it is important that the technician periodically performs safety checks on the copier to maintain optimum reliability and safety.

⚠ **CAUTION:**

(1) Avoid injury.
(2) Ensure that the copier is disconnected from its power source before continuing.
(3) Do a job wearing clothes which make the job easy and safe.
In case that even touching driving section, there must be no posibility of any injury like rolling up clothes.

The following checks, not all-inclusive, should be made during each service call:

⚠ **CAUTION:**

(1) Look for sharp edges, burrs, and damage on all external covers and copier frame.
(2) Inspect all cover hinges for wear (loose or broken).
(3) Inspect cables for wear, frays, or pinched areas.
(4) Ensure that the power cord insulation is not damaged (No exposed electrical conductors).
(5) Ensure that the power cord is properly mounted to the frame by cord clamps.

⚠ **WARNING:**

(1) Check the continuity from the round lug (GND) of the power cord to the frame of the copier. Ensure continuity.
An improperly grounded machine can cause an electrically-charged machine frame.
(2) When an earth cable is connected to the improper position, there is a possibility of danger such as explosion or an electric shock. Therefore, the earth cable should not be connected to the following items.
  a. Gas pipe
  b. Lightning rod
  c. Earth cable for telephone line
  d. Water service pipe made of resin, and water service pipe and faucet which are not approved to be grounded by the Waterworks Bureau.

[3] SAFEGUARDS DURING SERVICE CALLS

⚠ CAUTION:

(1) Confirm that all screws, parts, wiring and connector which are removed during maintenance are installed in their original positions.
(Especially, negligence of inserting a connector, a sandwiched cord and negligence of driving a screw should be avoided.)

(2) When disconnecting connectors, do not pull the wiring, particularly on AC line wiring and high voltage parts.

(3) Do not route the power cord where it is likely to be stepped on or crushed.

(4) Carefully remove all toner and dirt adhering to any electrical units or electrodes.

(5) After part replacement or repair work, route the wiring in such a way that it does not contact any burrs or sharp edges.

(6) Do not make any adjustments outside of the specified range.

[4] WHEN USING SERVICE MATERIALS

⚠ CAUTION: Care should be exercised when using isopropyl alcohol due to its flammability. When using alcohol to clean parts, observe the following precautions.

(1) Remove power from the equipment.

(2) Use alcohol in small quantities to avoid spillage or pudding. Any spillage should be cleaned up with rags and disposed of properly.

(3) Be sure that there is adequate ventilation.

(4) Allow a surface which has been in contact with alcohol to dry for a few minutes to ensure that the alcohol has evaporated completely before applying power or installing covers.

⚠ CAUTION: Though toner and developer are harmless, pay attention not to inhale them, or not to expose eyes to them excessively. If this happens, wash eyes well with clear water and consult a doctor.

[5] ACTION TO TAKE IN THE EVENT OF A SERIOUS ACCIDENT

(1) If an accident occurs, the sales company or dealer that was notified of the accident first must take necessary emergency action to assist any injured persons and also prevent any further damage or injury.

(2) If the customer notifies you of a serious accident, promptly check the situation regarding damage, injury, and so on, and report to Sales Company. Upon receiving this report, Sales Company must report to Konica Corporation.

(3) In order to determine the cause of the accident, preserve the site of the accident and also the machine itself, witness the investigation, and also follow any instructions from Sales Company or Konica Corporation.

[6] SUMMARY

It is the responsibility of every technician to use professional skills when servicing Konica products. There are no short cuts to high-quality service. Each copier must be thoroughly inspected with respect to safety considerations as part of every routine service call. The operability of the copier, and more importantly, the safety of those who operate or service the copier, are directly dependent upon the conscientious effort of each and every technician.

Remember .... when performing service calls, use good judgement (have a watchful eye) to identify safety hazards or potential safety hazards that may be present, and correct these problem areas as they are identified-the safety of those who operate the copier as well as those who service the copier depend on it!

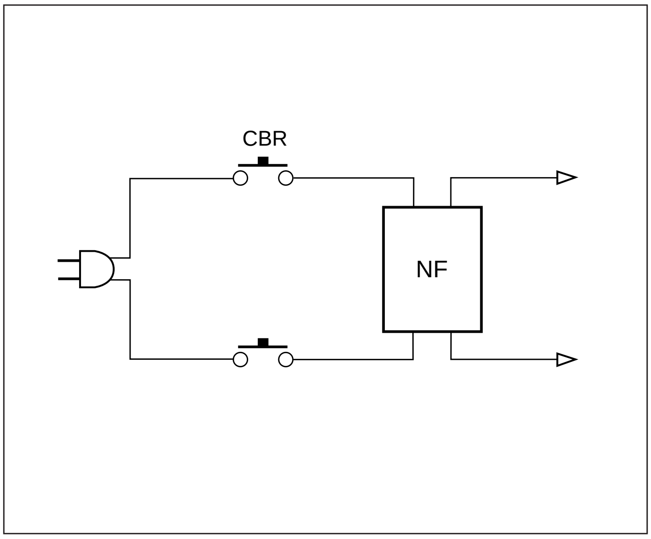
SAFETY CIRCUITS

The electrical circuit of this machine contains the following safety circuits to prevent an accident from occurring in the event of an abnormality.

[1] Overall safety circuit protector
[2] L1 (exposure lamp) overheating protection circuit
[3] L2, L3, L4 (fixing heater lamp) overheating protection circuit

These safety circuits are described below to provide the service enginear with a renewed awareness of them in order to prevent servicing errors that may impair their function.

[1] Overall Safety Circuit Protector

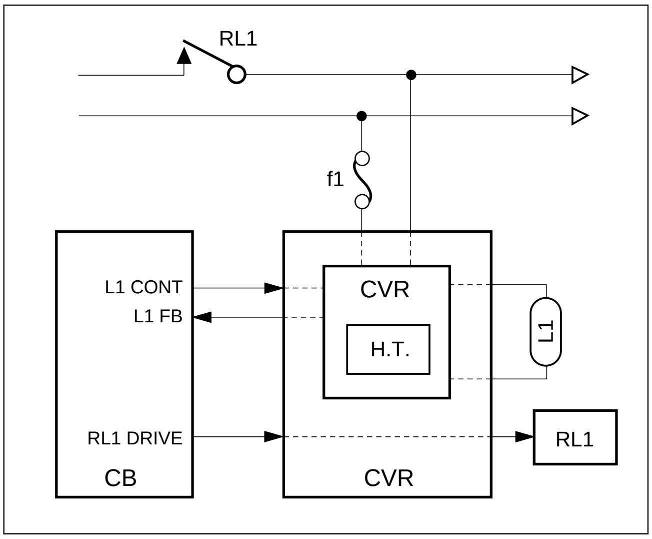


1. Protection function provided by the CBR (circuit breaker)

This function breaks the AC line instantaneously in the event that an excessive current flows due to a short between the AC line, for example.

⚠ **CAUTION: The function of the CBR must not be de-activated under any circumstances whatever.**

[2] L1 (exposure lamp) Overheating Protection Circuit



1. Protection function provided by software

When the L1 CONT signal output from the protection function CB (control board) by software becomes [L], L1 lights. At the same time, the L1 FB signal, which indicates that L1 is lit, is output from CVR to the CB.

The CB monitors both the L1 CONT and L1 FB signals.

If they differ from each other, RL1 (main relay) will be turned OFF, and power to L1 will be cut off.

⚠ **CAUTION: The function of RL1 must not be de-activated under any circumstances.**

2. Protection function using H.T. (hardware timer circuit)

If L1 remains lit for moer than prescribed time because of some abnormality, the hardware timer on CVR will operate, forcibly cutting off the relay on this board.

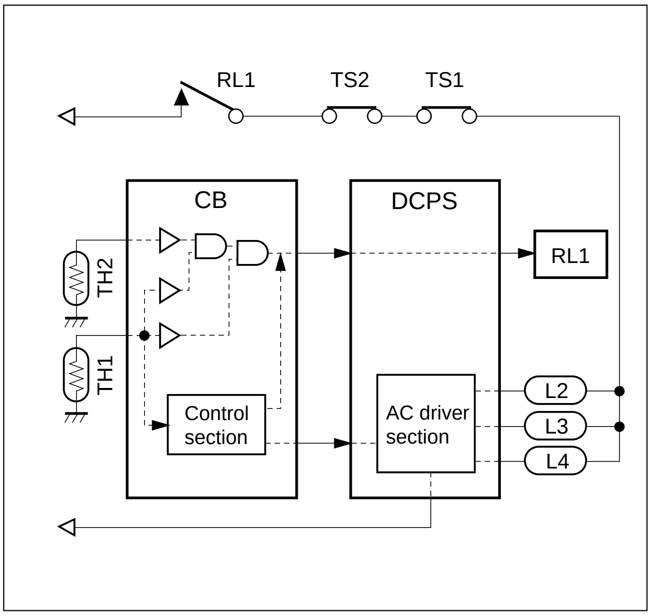
⚠ **CAUTION: The function of relay must not be de-activated under any circumstances.**

3. Protection function using f1 (optics temperature fuse)

If the temperature in the vicinity of f1 rises above prescribed temperature f1 will blow, cutting off the flow of current to L1.

⚠ **CAUTION: Do not under any circumstances use a piece of wire, etc., In place of f1.**

[3] L2, L3, L4 (fixing heater lamp) Overheat-ing Protection Circuit



1. **Protection function provided by software**
   This function turns OFF L2 (fixing heater lamp 1), L3 (fixing heater lamp 2), L4 (fixing heater lamp 3) and RL1 (main relay) in the event that the output voltage from TH1 (fixing temperature sensor 1) read the CPU is abnormal.

⚠ CAUTION: **Periodically check the contact face of TH1 with respect to the roller, and replace TH1 if it is abnormal.**
The function of RL1 must not be de-activated under any circumstances.

2. **Protection function provided by hardware (circuit)**
   This function uses a comparator circuit which compares the output voltage of TH1 and TH2 (fixing temperature sensor 2) with the abnormal judgment reference value.
   It disconnects L2, L3, L4 and RL1 from the circuit in the event that the output voltage of TH1 or TH2 exceeds the reference value.

⚠ CAUTION: **Periodically check the contact face of TH1, TH2 with respect to the roller, and replace TH1, TH2 if it is abnormal.**
The function of RL1 must not be de-activated under any circumstances.

3. **Protection function provided by TS1 (thermostat (upper)) and TS2 (thermostat (lower))**
   This function turns OFF TS1 or TS2, directly cutting off the power to L2, L3 and L4, if the temperature of the either upper fixing roller or lower fixing roller exceeds the specified value.

⚠ **CAUTION: Do not substitute a different electrical conductor in place of TS1 or TS2.**

INDICATION OF WARNING ON THE MACHINE

The caution labels are attached to the machine areas, as shown below, where you are advised to pay special attention to avoid any dangerous situations or serious injury.

⚠ CAUTION	⚠ 内部高温注意	⚠ ATTENTION	⚠ VORSICHT
High temperature can cause burns. Take care when removing jam.	高温によって火傷することがあります。 注意して紙詰まりを除去して下さい。	Haute temperature risque de brülure. Soyez prudent en retirant une feuille coincée.	Hohe temperaturen Können verbrennungen verursachen. Bitte vorsicht bei antfernen von papierstau.

⚠ **CAUTION:**

**This portion is internally very hot.
Do not touch it, lest you should get burnt.**

⚠ **CAUTION/ATTENTION/VORSICHT**

High Temperature !
Température élevée !
Heiße Oberfläche !

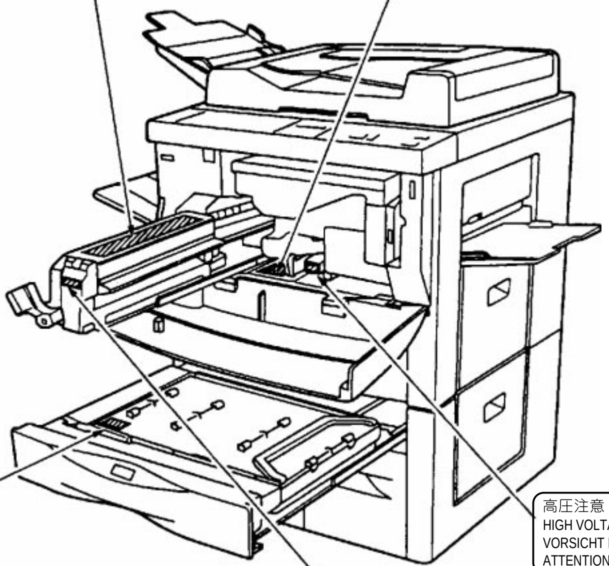
DO NOT TOUCH
Use care when clearing paper.

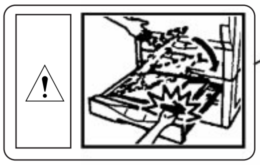
Risque de brülure.
Soyez prudent en retirant la feuille coincée.

Brandverletzungsgefahr.
Bei Beseitigung von Papierstaus vorsichtig vorgehen.

⚠ **CAUTION:**

This portion is internally very hot. Do not touch it, lest you should get burnt.





⚠ **CAUTION:**

The ADU guide plate is not latched. Do not release it, lest you may cause injury.

高圧注意
HIGH VOLTAGE CAUTION.
VORSICHT HOCHSPANNUNG.
ATTENTION HAUTE TENTION.

⚠ **CAUTION:**

This portion has a high voltage generated. Never touch it, lest you should be electrically shocked.

CAUTION HIGH TEMPERATURE
VORSICHT HEISSE INNENFLACHEN
ATTENTION TEMPERATURE ELEVEE
内部高温注意

⚠ **CAUTION:**

This portion is internally very hot. Do not touch it, lest you should get burnt.

⚠ **CAUTION:**

**You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.
Do not remove caution labels. If any caution label or caution indicator is soiled, clean the label. If you cannot make it legible or if the caution label is removed, please contact your Service Centre.**

1

LIST OF DIFFERENCE

LIST OF MAJOR DIFFERENCES BETWEEN Konica 7065 AND Konica 7055

This product is based on Konica 7065. The following table shows the major differences:

[1] Product specification

Class	Konica 7065	Konica 7055	Reason for change
Specification	1. Copy speed 65 sheets (A4) 34 sheets (A3)	55 sheets (A4) 28 sheets (A3)	CPM change
	2. Fast copy out time (A4) 3.9 sec. (manual/AE/APS)	4.9 sec. (manual/AE/APS)	CPM change
	3. Free tray selection No	Yes	Function enhancement
	4. Consumables Developer: Common with 7060 Toner: Exclusively for 7065 Drum: Common with 7060	Developer: Common with 7060/7065 Toner: Common with 7065 Drum: Common with 7060/7065	Service performance enhancement (standardization)

[2] Mechanism

Class	Konica 7065	Konica 7055	Reason for change
Fixing unit	1. Fixing unit lower claws 3 claws	5 claws	Improve reliability

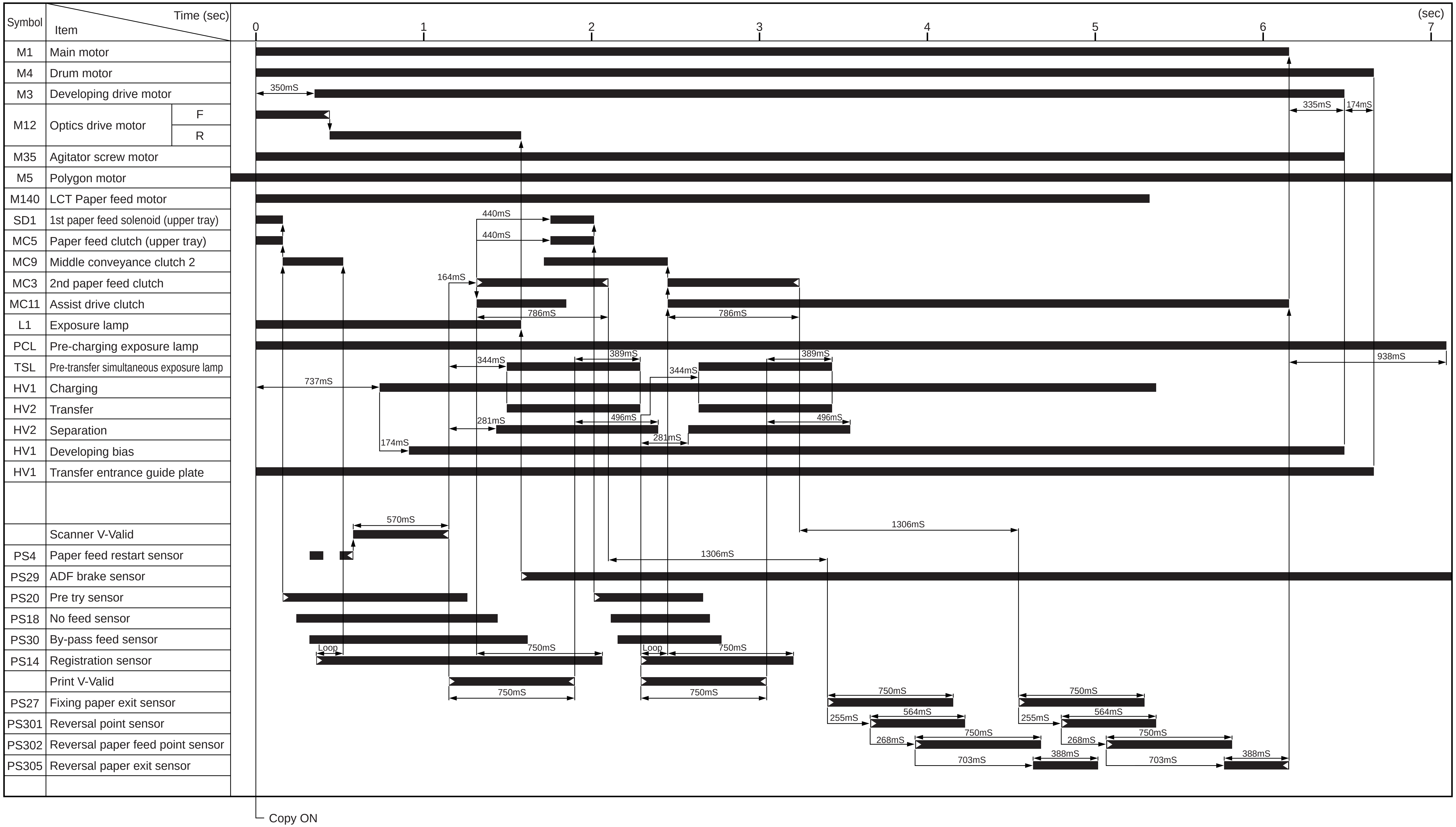
[3] Electrical control

Class	Konica 7065	Konica 7055	Reason for change
Drive unit	1. Line speed 370 mm/s (400 dpi) 280 mm/s (600 dpi) 185 mm/s (thick paper: both 400/600 dpi)	280 mm/s (400 dpi) 280 mm/s (600 dpi) 185 mm/s (thick paper: both 400/600 dpi)	CPM change
Write unit	1. M5 (polygon) rotations 21,850.4 rpm (400 dpi) 24,803 rpm (600 dpi) 10,925 rpm (thick paper: both 400/600 dpi)	16,535.4 rpm (400 dpi) 24,803 rpm (600 dpi) 10,925 rpm (thick paper: both 400/600 dpi)	CPM change
Electrical parts	1. Image processing board	Specification change	CPM change
	2. Control ROM/1 (C1)		
	3. Control ROM/2 (C2)		

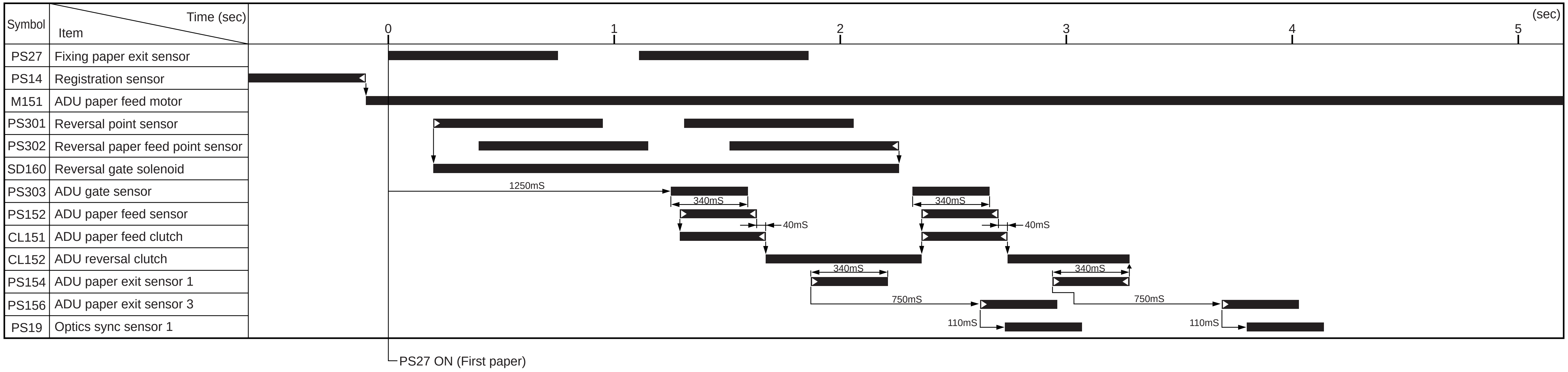
2

DIAGRAMS

7055 TIMING CHART (A4, LIFE SIZE, TWO COPIES, UPPER PAPER FEED)



7055 ADU TIMING CHART (A4, TWO ORIGINALS, TWO SHEETS SET)



Symbol	Item
PS27	Fixing paper exit sensor
PS14	Registration sensor
M151	ADU paper feed motor
PS301	Reversal point sensor
PS302	Reversal paper feed point sensor
SD160	Reversal gate solenoid
PS303	ADU gate sensor
PS152	ADU paper feed sensor
CL151	ADU paper feed clutch
CL152	ADU reversal clutch
PS154	ADU paper exit sensor 1
PS156	ADU paper exit sensor 3
PS19	Optics sync sensor 1

Time (sec)
(sec)
0
1
2
3
4
5
1250mS
340mS
340mS
40mS
40mS
340mS
340mS
750mS
750mS
110mS
110mS
PS27 ON (First paper)

3

ADJUSTMENT

25 MODE

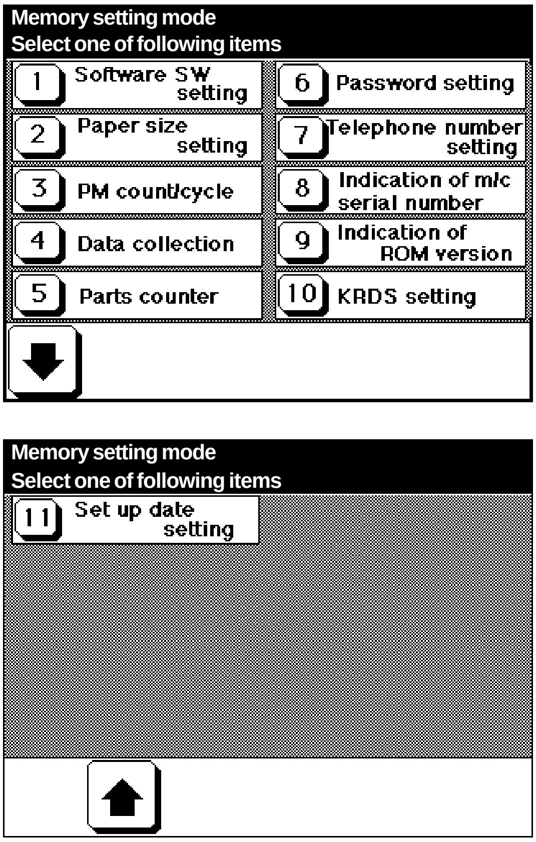
[1] Setting Method

A special operating mode called "25 Mode" has been provided with this machine. This mode enables to rewrite the non-volatile storage and specify other various settings.

1. Turn off the main switch.
2. Turn the main switch back on while holding down 2 and 5 of the copy quantity setting buttons.
   25 Mode Menu Screen will appear.

In the 25 mode normal copy operation becomes unavailable.

[25 Mode Menu Screen]


Memory setting mode
Select one of following items

1 Software SW setting
6 Password setting
2 Paper size setting
7 Telephone number setting
3 PM count/cycle
8 Indication of m/c serial number
4 Data collection
9 Indication of ROM version
5 Parts counter
10 KRDS setting
11 Set up date setting

* 10 KRDS setting will be shaded and unavailable if the optional KRDS or Memory Card Adapter Kit is not equipped.

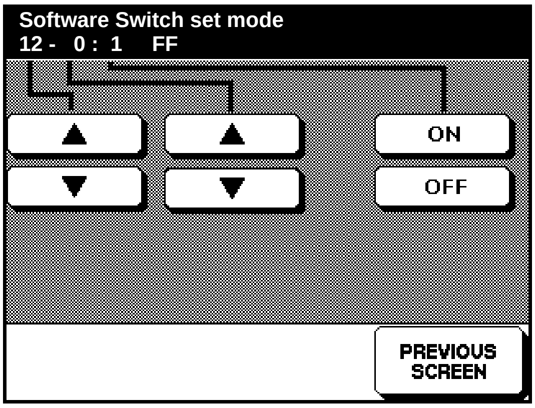
3. Press the desired number key of the item to set.
   Each setting screen will appear.
4. Enter data in each selected screen.
5. Press the PREVIOUS SCREEN key to check the data that has been entered.
6. Turn the main switch off to cancel the 25 mode.
7. New data will be effective after restarting.

[2] Setting Software DIP SW

1. Setting method

This setting specifies the software DIP SW on the software DIP SW Setting Screen. (Refer to "*1" on next page.)

[Software DIP SW Setting Screen]

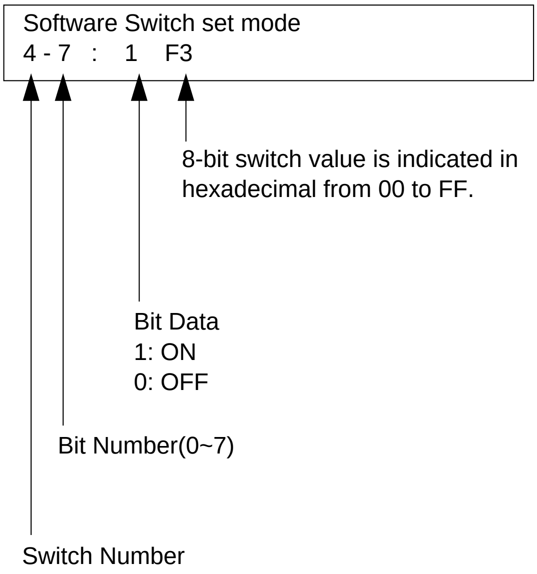

Software Switch set mode
12 - 0 : 1 FF

▲
▼
▲
▼
ON
OFF
PREVIOUS SCREEN

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu Screen] Press 1 Software SW setting.
3	[Software DIP SW Setting Screen] Select DIP switch number. Use the left ▲ ▼ key.
4	Select bit number of the switch. Use the middle ▲ ▼ key.
5	Select ON(=1) or OFF(=0) of switch. Use ON or OFF key. ON : "1" is set (Set bit). OFF : "0" is set (Clear bit).
6	Press PREVIOUS SCREEN key to end setting.

*1:

- The bit of the switch is written in the non-volatile RAM every time it is changed.
- The numbers shown in the message area are defined as follows:



```
Software Switch set mode
4 - 7  :  1  F3
```

8-bit switch value is indicated in hexadecimal from 00 to FF.
Bit Data
1: ON
0: OFF
Bit Number(0~7)
Switch Number

For each switch function, refer to "List of Software SW".

<List of Software Switch>

☐ : The boxes with thick lines indicate factory settings.

DIPSW No.	Bit	Function	0	1
DIPSW 1	0	Operation when key counter is removed (when using as a copier)	Ignore	[✓ Instantaneous stop jam]
	1	A3 (11 x 17) count method	1 count	[✓ 2 count] (Note)
	2	FNS number of stapled sheets upper limit stop select	[✓ Immediate stop]	Stop at an interval of copy set
	3	FNS maximum number of stapled sheets	[✓ * 1]	* 1
	4	〃	[✓ * 1]	* 1
	5	FNS sensor failure sensing	[✓ * 2]	* 2
	6	〃	[✓ * 2]	* 2
	7	F/E code screen select (all other than fixing unit F code can be replaced with E code)	[✓ No]	Yes
DIPSW 2	0	FNS sub-tray select for service check	[✓ * 3]	* 3
	1	〃	[✓ * 3]	* 3
	2	Jam code display	[✓ No]	Yes
	3	Auto Charge electrode cleaning	[✓ Yes]	No
	4	Auto Transfer/Separation electrode cleaning	[✓ Yes]	No
	5	FNS over-stacking sensing	[✓ Sense]	Ignore
	6	25, 36, 47 mode password request. Password: 9272 (fixed)	[✓ No request]	Request
	7	Select A-series papers only (for Europe)	[✓ No]	Yes
DIPSW 3	0	–	–	[✓ –]
	1	F34 latch	[✓ No]	Yes
	2	F35 latch	[✓ No]	Yes
	3	F36 latch	[✓ No]	Yes
	4	F37 latch	[✓ No]	Yes
	5	Operation when a key counter is removed (when using as a printer)	[✓ Ignore]	Same as copier
	6	Confirmation message when the Clear button is on	[✓ Display]	No display
	7	Status screen	[✓ No]	Yes
DIPSW 4	0	Toner level sensing (replenish toner display)	* 5	[✓ * 5]
	1	〃	[✓ * 5]	* 5
	2	Destination select	[✓ * 6]	* 6
	3	〃	* 6	[✓ * 6]
	4	–	–	–
	5	Reserve page memory at job start (Refer to "Note 4" on page 4-11)	[✓ No]	Yes
	6	Polygon motor low-speed timing	[✓ * 7]	* 7
	7	〃	[✓ * 7]	* 7
DIPSW 5	0	F4 size setting	[✓ * 8]	* 8
	1	〃	[✓ * 8]	* 8
	2	Select paper line (Vertical line/Horizontal line) (for Japan only)	[✓ All horizontal.]	Horizontal for A4/B5/by-pass feed.
	3	Polygon motor low-speed select (when idling)	[✓ * 9]	* 9
	4	〃	[✓ * 9]	* 9
	5	〃	[✓ * 9]	* 9
	6	Image lead edge erasure amount during RADF copy	[✓ * 10]	* 10
	7	〃	[✓ * 10]	* 10

Note: For Europe / 2 count
other than Europe / 1 count

DIPSW No.	Bit	Function	0	1
DIPSW 6	0	Separation claw on timing	* 11	* 11
	1	〃	* 11	* 11
	2	〃	* 11	* 11
	3	〃	* 11	* 11
	4	Separation claw off timing	* 11	* 11
	5	〃	* 11	* 11
	6	〃	* 11	* 11
	7	〃	* 11	* 11
DIPSW 7	0	Toner replenish stop function	No	Yes
	1	Toner replenish stop timing (Refer to "Note 1" on page 4-11)	When copying ends	Interval between copy set
	2	Number of copies available after toner replenishment display	* 19	* 19
	3	〃	* 19	* 19
	4	—	—	—
	5	—	—	—
	6	LCD contrast adjustment in help screen	No	Yes
	7	Full auto screen setting	Yes	No
DIPSW 8	0	Selects erasure area in Auto Non-image Area Erasure Mode	* 26	* 26
	1	Fixed mag. ratio change	Enable	Disable
	2	Prevents copying at PM display	No	Yes
	3	—	—	—
	4	Preferential tray select when APS is canceled	* 12	* 12
	5	〃	* 12	* 12
	6	〃	* 12	* 12
	7	For data collection (For checking collection data 4 to 7 in the 25 mode)	No	Yes
DIPSW 9	0	Number of copies limit	* 13	* 13
	1	〃	* 13	* 13
	2	〃	* 13	* 13
	3	〃	* 13	* 13
	4	Normal/Fine select	* 14	* 14
	5	〃	* 14	* 14
	6	Japanese P81 MSG (MSG for Grocery store use)		
	7	〃		
DIPSW 10	0	Sets the WT daylight saving time	* 16	* 16
	1	〃	* 16	* 16
	2	〃	* 16	* 16
	3	〃	* 16	* 16
	4	Switches the [-A-] display	-A-	1.00
	5	Message on setting screen	Guidance display	Machine status display.
	6	Displays icons on the third line	No	Yes
	7	—	—	—

DIPSW No.	Bit	Function	0	1
DIPSW 11	0	Tray screen OK key display (Effective when layer type menu screen is selected.)	Yes	No
	1	Magnification screen OK key display (Effective when layer type menu screen is selected.)	Yes	No
	2	Density screen OK key display (Effective when layer type menu screen is selected.)	Yes	No
	3	Copy mode OK key display (Effective when layer type menu screen is selected.)	Yes	No
	4	Select time without OK (Effective when layer type menu screen is selected.)	Short	Long
	5	Operation screen select	Layer type menu screen	Direct selection menu screen
	6	Tray icon display (Effective when direct selection menu screen is selected.)	No	Yes
	7	–	–	–
DIPSW 12	0	Sets number of print for 24-hour processing	* 20	* 20
	1	〃	* 20	* 20
	2	–	–	–
	3	Sets number of copies for copy disable (at PM display)	* 18	* 18
	4	〃	* 18	* 18
	5	〃	* 18	* 18
	6	Recognizes KRDS connection	Not connected	Connected
	7	—	—	—
DIPSW 13	0	Isolates Tray 1 as provisional measure	Normal	Unusable
	1	Isolates Tray 2 as provisional measure	Normal	Unusable
	2	Isolates Tray 3 as provisional measure	Normal	Unusable
	3	Isolates Tray 4 as provisional measure	Normal	Unusable
	4	Isolates Tray 5 as provisional measure	Normal	Unusable
	5	Isolates ADU as provisional measure	Normal	Unusable
	6	–	–	–
	7	–	–	–
DIPSW 14	0	–	–	–
	1	Exit to Subtray in non-sort	No	Yes
	2	Variable magnification APS disable	No	Yes
	3	Selects consolidated operation during printer mode	Disable	Enable
	4	Selects arbitrary tray operation during printer mode	Disable	Enable
	5	–	Must not be changed	Must not be used
	6	–	Must not be changed	Must not be used
	7	–	–	–
DIPSW 15	0	Selects first selected tray in auto tray selection	* 22	* 22
	1	〃	* 22	* 22
	2	〃	* 22	* 22
	3	Displays universal tray	Display size	Special
	4	Changes Platen memory read order	N to 1	1 to N
	5	Sets Taiwan A series 25 mode tray size	B series size	K series size
	6	Detects Taiwan K series size	B series size	K series size
	7	Dual prohibition	Not prohibited	Prohibited

DIPSW No.	Bit	Function	0	1
DIPSW 16	0	Platen original size detection AB/inch	[✓ Destination series only]	Both AB & inch
	1	–	–	–
	2	Platen original size minimum detection	[✓ * 23]	* 23
	3	〃	* 23	[✓ * 23]
	4	〃	[✓ * 23]	* 23
	5	–	–	–
	6	Stop method when toner empty (Refer to "Note 1" below)	[✓ No]	Stop after paper exit
	7	Thin line reproducibility (Refer to "Note 2" below)	Normal	[✓ Smoothing]
DIPSW 17	0	Displays total count starting date (Display or not display the corresponding screen in the P mode.)	[✓ Disable]	Enable
	1	Sets trailing edge erase amount	[✓ * 24]	* 24
	2	〃	* 24	[✓ * 24]
	3	47-15-01 data collection counter clear protect	Enable	[✓ Prohibit]
	4	–	–	–
	5	Job offset (Refer to "Note 3" below)	[✓ No]	Yes
	6	–	–	–
	7	Recovery operation when key counter is removed (Domestic only)	Yes	[✓ No]
DIPSW 18	0	Sets tandem mode with auto button	[✓ No]	Yes
	1	Displays 47-94 data	[✓ No]	Yes
	2	Selects threshold value in Auto Non-image Area Erasure Mode	[✓ * 26]	* 26
	3	〃	[✓ * 26]	* 26
	4	Counts C(K) drive during printer mode	[✓ Yes]	No
	5	–	–	–
	6	RADF book copy	[✓ No]	Yes
	7	–	–	–
DIPSW 19	0	–	–	–
	1	Request password at end of job	[✓ No]	Yes
	2	Move to next job at platen copying start	[✓ No]	Yes
	3	Replenish toner selection at toner density low stop	[✓ No]	Yes
	4	Fixing roller temperature setting	[✓ Normal]	+10 °C
	5	Photo mode γ selection	*27	[✓ *27]
	6	〃	*27	[✓ *27]
	7	〃	[✓ *27]	*27

Note 1: DIP SW related to the stop method during toner empty are DIP SW7-1 and 16-6, and are related as indicated below:

- 16-6 becomes the toner empty stop method if it is set in “1” (Stop after paper exit).
- 7-1 becomes the toner empty stop method if 16-6 is set at “0” (No).

Note 2: The smoothing selection becomes effective when the lines break during thin line copying. The resolution, however, will decrease.

Note 3: A setting which performs offset output between jobs for devices equipped with a finisher.

Note 4: After the original is read, page memory for output operation during output should be used in the following operations:

<Rotation, Thick paper mode, Overlay, Shift, Aggregating function>

Therefore, memory overflow may occur during output even after the read operation if the memory is narrowly sufficient when the original is read. This setting is to secure page memory in advance in order to avoid such problems.

When securing this page memory, however, the absolute amount of memory is decreased for outputs which do not apply page memory, thus care must be taken when using this setting.

* 1: FNS maximum number of stapled sheets

Mode	1-4	1-3
50 sheets	0	0
45 sheets	0	1
40 sheets	1	0
35 sheets	1	1

* 2: FNS sensor failure sensing

Mode	1-6	1-5
Lower limitsensor sensing	0	0
Lower limit sensor sensing Abnormal drop sensing Upper limit sensing	0	1
Lower limit sensor sensing Abnormal drop sensing Upper limit sensing	1	0

Number of copies overrun sensing

* 3: FNS sub-tray select for service check

Mode	2-1	2-0
Does not	0	0
Sub-tray (Exits sheets face down)	0	1
Sub-tray (Exits sheets face up)	1	0

* 5: Toner level sensing (toner replenish display)

Note: When increasing the set value (number of copies), the amount of toner may become insufficient before the toner supply indication, and the density may decrease when copying a large amount of high dark rate originals continuously.

Mode	4-1	4-0
After 100 copies	0	0
After 1000 copies	0	1
After 2000 copies	1	0
After 3000 copies	1	1

* 6: Destination select

Mode	4-3	4-2
Japan	0	0
USA	0	1
Europe/others	1	0

* 7: Polygon motor low-speed timing select

Mode	4-7	4-6
15 sec. after job end	0	0
30 sec. after job end	0	1
60 sec. after job end	1	0
120 sec. after job end	1	1

* 8: F4 size setting

Mode	5-1	5-0
8.5 × 13	0	0
8.25 × 13	0	1
8.125 × 13.25	1	0
8 × 13	1	1

* 9: Polygon motor low-speed select (when idling)

Mode	5-5	5-4	5-3
No low-speed rotation	0	0	0
Low-speed rotation 14,000rpm	0	0	1
Low-speed rotation 11,024rpm	0	1	0
Low-speed rotation 8,000rpm	0	1	1
Stop	1	0	0

* 10: Image lead edge erasure amount during RADF copy

Mode	5-7	5-6
2 mm	0	0
3 mm	0	1
4 mm	1	0
5 mm	1	1

* 11: Separator claw ON setting

Note: Separator jams occur in some cases when the setting is changed.

Mode	6-3	6-2	6-1	6-0
0 mm	0	0	0	0
5 mm	0	0	0	1
10 mm	0	0	1	0
15 mm	0	0	1	1
20 mm	0	1	0	0
25 mm	0	1	0	1
30 mm	0	1	1	0
35 mm	0	1	1	1
40 mm	1	0	0	0
45 mm	1	0	0	1
50 mm	1	0	1	0
55 mm	1	0	1	1
60 mm	1	1	0	0
65 mm	1	1	0	1
70 mm	1	1	1	0
75 mm	1	1	1	1

* 11: Separator claw OFF setting

Note: Separator jams occur in some cases when the setting is changed.

Mode	6-7	6-6	6-5	6-4
50 mm	0	0	0	0
55 mm	0	0	0	1
60 mm	0	0	1	0
65 mm	0	0	1	1
70 mm	0	1	0	0
75 mm	0	1	0	1
80 mm	0	1	1	0
85 mm	0	1	1	1
90 mm	1	0	0	0
95 mm	1	0	0	1
100 mm	1	0	1	0
105 mm	1	0	1	1
110 mm	1	1	0	0
115 mm	1	1	0	1
120 mm	1	1	1	0
125 mm	1	1	1	1

* 12: Preferential tray when APS is canceled.

Mode	8-6	8-5	8-4
Select by destination	0	0	0
Tray 1	0	0	1
Tray 2	0	1	0
Tray 3	0	1	1
Tray 4	1	0	0
Tray 5	1	0	1

Tray selection according to the destinations

Japan:	Tray 1
USA:	Tray 2
Europe/others:	Tray 3

* 13: Number of copies limit

Mode	9-3	9-2	9-1	9-0
No	0	0	0	0
1 copy	0	0	0	1
3 copies	0	0	1	0
5 copies	0	0	1	1
9 copies	0	1	0	0
10 copies	0	1	0	1
20 copies	0	1	1	0
30 copies	0	1	1	1
50 copies	1	0	0	0
99 copies	1	0	0	1

* 14: Normal/fine select

Note: 4ED select tends to cause memory overflow. Also, selection of many functions such as rotation, etc., will not be possible.

Mode	9-5	9-4
1ED + 2ED	0	0
1ED + 4ED	0	1
2ED + 4ED	1	0

* 16: Set the WT daylight saving time

Mode	10-3	10-2	10-1	10-0
0 min.	0	0	0	0
10 min.	0	0	0	1
20 min.	0	0	1	0
30 min.	0	0	1	1
40 min.	0	1	0	0
50 min.	0	1	0	1
60 min.	0	1	1	0
70 min.	0	1	1	1
80 min.	1	0	0	0
90 min.	1	0	0	1
100 min.	1	0	1	0
110 min.	1	0	1	1
120 min.	1	1	0	0
130 min.	1	1	0	1
140 min.	1	1	1	0
150 min.	1	1	1	1

* 18: Sets number of copies for copy disable upon PM arrival.
Note: This set value is effective only when DIP SW 8-2 is set at “1” (Yes).

Mode	12-5	12-4	12-3
1000 copies	0	0	0
2000 copies	0	0	1
3000 copies	0	1	0
4000 copies	0	1	1
5000 copies	1	0	0

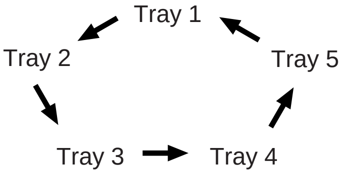
* 19: Number of copies available after toner replenishment
Note: When DIP SW 7-0 is set at “1” (Yes) , it will stop when copying the set value in accordance with the toner empty stop method which has been set, and further copying will be disabled until toner is supplied.

Mode	7-3	7-2
100 copies	0	0
1000 copies	0	1
2000 copies	1	0
3000 copies	1	1

* 20: Sets number of print for 24-hour processing
Note: Assuming a device which is energized continuously, the process automatic adjustment applied for image level stabilization is performed per number of prints for the setting indicated below. (Process automatic adjustment is being performed when the power (main switch) is ON.)

Mode	12-1	12-0
2000 times	0	0
4000 times	0	1
3000 times	1	0
5000 times	1	1

* 22: Selects first selected tray in auto tray selection
Note: Trays are searched as shown in the figure below, and selection of the first tray to be used is made.



Mode	15-2	15-1	15-0
Search sequence by destination	0	0	0
Search from tray 1	0	0	1
Search from tray 2	0	1	0
Search from tray 3	0	1	1
Search from tray 4	1	0	0
Search from tray 5	1	0	1

Search sequence by destination

Japan	: tray 1
USA	: tray 2
Europe/others	: tray 3

* 23: Platen original size minimum detection.

Mode	16-4	16-3	16-2	
A3	0	0	0	
B6R	0	0	1	
A5R	0	1	0	(Note)
5.5 x 8.5R	0	1	1	
11 x 17	1	0	0	
8.5 x 11	1	0	1	

Note: For USA : 5.5 X 8.5R

* 24: Sets trailing edge erase amount.

Mode	17-2	17-1
Does not	0	0
2 mm	0	1
3 mm	1	0
5 mm	1	1

* 26: Selects erasure area in Auto Non-image Area Erasure Mode.

This setting is related to the non-image area automatic erase mode of the application function.

1. Selecting the erasure area
   "Rectangle erasure" and "Skewed original compensation" are the two options in selecting an area to be erased, and are used as indicated below:
   - When the shape of the original is not rectangle (circular, etc.) → Select "Skewed original compensation"
   - When the original is rectangle and in standard size → Select "Rectangle erasure"

   In the rectangle erase selection, however, black streaks may appear even for a rectangle shape original if it is set skewed. Furthermore, if there are black areas on the outer rim of the original, it may mistakenly be judged as an non-image, and non-image erase may not be performed accurately. Rectangle erasing becomes effective is such a case.
2. Selecting the Discrimination level (threshold value)
   Discrimination of the original and the outer-original areas (Non-image Area) may not be performed accurately for dark originals, or when miscellaneous lights (light from a fluorescent lamp or the sun) break into the copier. For such case, the threshold value can be changed.
   - To correspond to dark originals → Select 80, 96, 101 (The smaller value, the more it conforms to darker originals.)
   - To correspond to miscellaneous lights → Select 176

Remarks:

There is a non-image area erasure function setting in the key operator mode memory switch. When the copy paper is selected by manual, the copy area can be selected as follows:

- When copying only the image size area determined by the APS sensor → Select "erase the outer-original (non-image area) area"
- When copying the entire area of the selected copy paper → Select "will not erase the outer-original (non-image area) area"

(Note: The APS sensor will be in effect even when selecting the copy paper by manual.)

Erasure area/Discrimination level (Threshold value)	8-0	18-3	18-2
Rectangle erasure/128	0	0	0
Rectangle erasure/96	0	0	1
Rectangle erasure/80	0	1	0
Rectangle erasure/176	0	1	1
Skewed original compensation/128	1	0	0
Skewed original compensation/101	1	0	1
Skewed original compensation/176	1	1	0
Skewed original compensation/176	1	1	1

* 27: Photo mode γ selection

Mode	19-7	19-6	19-5
No	0	0	0
Light 1	0	0	1
Light 2	0	1	0
Normal	0	1	1
Dark 1	1	0	0
Dark 2	1	0	1

4

SERVICE

Main Precautions for Maintenance

1. Points to be confirmed before maintenance
   Before starting maintenance, ask a user and collect information about troubles occurred on the machine before the maintenance and the conditions of the machine to grasp key points for the maintenance.

2. Copy sample
   Be sure to make copy samples at the start and the end of maintenance for checking images.

3. Drum
   1) Never expose the drum to the sunlight. Be also careful not to expose a drum to indoor light as far as possible.
      When a drum unit or a drum is out of the machine, never fail to cover it with a drum cover.
   2) When replacing a drum or a cleaning blade, refer to Item of mounting/dismounting of a cleaning blade for doing a replacement work.

4. After replacing a drum, be sure to reset a drum counter before image adjustment. After replacing developer, L detection adjustment must be conducted also.

5. When maintenance is completed, be sure to reset the PM counter. Incidentally, a development counter is reset automatically in the course of L detection adjustment.

6. When replacing a toner cartridge, wait until the toner supply LED on the operation panel flashes before the replacement.

⚠ Caution: **Turn the main switch off and pull out the power plug without fail before the work of maintenance.**

SERVICE SCHEDULE

[1] Service Schedule

Classification	Number of copies (unit: 10,000) Service item (cycles)	Guarantee period (5 years or 5,000,000 copies)																			Service times
		15	30	45	60	75	90	105	120	135	150		390	405	420	435	450	465	480	495	
Main body	Maintenance (Every 150,000 copies)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	33 times
	Periodic check (I) (Every 300,000 copies)		●		●		●		●		●	●	●		●		●		●		16 times
	Periodic check (II) (Every 450,000 copies)			●			●			●		●		●			●			●	11 times
	Periodic check (III) (Every 900,000 copies)						●					●					●				5 times
	Periodic check (IV) (Every 1,800,000 copies)											●									2 times
	Periodic check (V) (Every 3,000,000 copies)											●									1 time
	Periodic check (VI) (Every 3,900,000 copies)												●								1 time
RADF (DF-312)	Maintenance (Every 150,000 copies)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	33 times
	Periodic check (I) (Every 300,000 copies)		●		●		●		●		●	●	●		●		●		●		16 times
	Periodic check (II) (Every 1,500,000 copies)										●	●					●				3 times
LCT (LT-352)	Maintenance (Every 150,000 copies)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	33 times
	Periodic check (I) (Every 450,000 copies)			●			●			●		●		●			●			●	11 times
	Periodic check (II) (Every 900,000 copies)						●					●					●				5 times
FNS (FS-106)	Maintenance (Every 150,000 copies)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	33 times
	Periodic check (I) (Every 900,000 copies)						●					●					●				5 times
	Periodic check (II) (Every 2,550,000 copies)											●									1 time
FNS (FS-108BM)	Maintenance (Every 150,000 copies)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	33 times
	Periodic check (I) (Every 900,000 copies)						●					●					●				5 times
	Periodic check (II) (Every 2,550,000 copies)											●									1 time
PI (PI-108)	Maintenance (Every 150,000 copies)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	33 times
	Periodic check (I) (Every 450,000 copies)			●			●			●		●		●			●			●	11 times
	Periodic check (II) (Every 900,000 copies)						●					●					●				5 times

[2] Maintenance Items

1. Main body (Every 150,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
1	Preparation	(1) Image check			●				
		(2) Kit contents check			●				
		(3) 36 - 40 (Check of adjustment value, Dmax and γ correction error)			●				
2	Fixing unit	(1) Fixing unit removing							
		(2) Jam clearance door removing							
		(3) Upper cover removing							
3	Drum unit	(1) Drum unit removing							
		(2) Drum unit check			●				
		(3) Charging corona unit removing							
		(4) Charging control plate replacement 55WA2508*	1				●		
		(5) Charging wire replacement (Removing & installing) 55FA2501*	1				●		
		(6) Charging corona unit (Back plate and its around, and PCL)		●					Drum cleaner & Waste rag Blower brush
		(7) Charging wire cleaning block/B (Upper) 25SA-254*	1				●		
		(8) Charging cleaning block/A (Lower) 25SA-253*	1				●		
		(9) Developing unit removing							
		(10) Cleaning blade removing							
		(11) Drum removing							
		(12) Drum cartridge/Developing unit bottom plate/Toner control sensor/Separating claw		●					Blower brush & Cleaning pad * Drum cleaner (used only when cleaning the toner control sensor)
		(13) Recycle pipe check			●				
		(14) Toner collecting screw/A		●					
		(15) Toner guide roller replacement 55WA-204*	1				●		Blower brush & Cleaning pad
		(16) Cleaner idler gear replacement 55FA7707*	1				●		
		(17) Cleaning blade 25SA-206*	1				●		
		(18) Cleaning blade and upper plate installing							

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
4	Developing unit	(1) Developing bias intercept		●					Blower brush & Cleaning pad
		(2) Developer	1				●		
		(3) Developing unit		●					Blower brush & Cleaning pad
		(4) Developing unit installation							
5	Transfer/ Separation corona unit (Note 1)	(1) Transfer/Separation corona unit (Front & rear block/Guide rail/Separating bridge/Enter guide plate/ Spark arrestor sheet/Back plate) removing & installing		●					Blower brush & Cleaning pad /Cotton swab/Drum cleaner
		(2) Discharging wire 25SA2612*	3				●		
		(3) Transfer cleaning block/upper assembly 25SA-263*	1				●		
		(4) Separation cleaning block/upper assembly 25SA-264*	1				●		
6	Machine inside	(1) Upper part of conveyance unit		●					Drum cleaner & Cleaning pad
		(2) Conveyance belt		●					Drum cleaner & Cleaning pad
7	2nd paper feed unit	(1) Paper dust removing brush (Removing)		●					Cleaning pad & Blower brush
		(2) 2nd paper feed roller		●					Drum cleaner & Cleaning pad
		(3) Paper dust removing brush installing							
		(4) Transfer synchronization lamp (TSL)		●					Blower brush
8	Drum unit	(1) Drum unit installing							
9	Drive unit & Filter	(1) Back plate removing							
		(2) Developing suction filter check			●				
		(3) Filter K 55FA7301*	1				●		
		(4) Timing belt check			●				
		(5) Drive gear oiling				●			Plus guard No. 2
		(6) Back plate installing							
10	Reversal paper exit & ADU	(1) Left side external/reversal paper exit unit removing							
		(2) Reversal paper exit rollers (Upper/Middle/Lower)		●					Drum cleaner & Cleaning pad
		(3) Timing belt check			●				
		(4) Sensors cleaning Reversal paper exit section (4 position) ADU horizontal conveyance section (6 position)		●					Blower brush
		(5) Gears oiling (drive / introduction section)				●			Plus guard No. 2
		(6) Reversal paper exit unit / Left side panel installing							
11	Paper feed unit (Main body/LCT)	**Paper feed unit**							
		(1) Upper right side plate and unit removing							
		(2) Main body bottom plate and around paper feed unit		●					Blower brush & Cleaning pad

(Note 1)

- Do not remove the entrance guide plate and rollers of transfer separation corona when cleaning them.
- Basically, use Blower brush to clean roller parts. Use cleaning pad and drum cleaner only when the foreign matters or dust on the roller cannot be removed. In that case, do not press the roller hard. Wipe it gently.
- As to the cleaning of spark arrestor sheet, clean from the reverse side of the guide plate, using cotton swab. Make sure to wipe gently, try not to press hard. It is possible to use drum cleaner when it is soiled heavily.

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
11	Paper feed unit (Main body/LCT)	(3) Sensors(5 positions of upper tray)		●					Blower brush
		(4) Gears (upper tray) oiling				●			Plus guard No. 2
		(5) Conveyance/driven roller (Upper tray)		●					Drum cleaner & Cleaning pad
		(6) Swing/feed roller (3 positions including by-pass tray)		●					Drum cleaner & Cleaning pad
		(7) Double feed prevention roller (by-pass tray) (Removing & Cleaning & Installing)		●					Drum cleaner & Cleaning pad
		(8) Double feed prevention roller (1st tray of main body) (Cassette guide rail removing/ Double feed prevention roller cleaning)		●					Drum cleaner & Cleaning pad
		(9) Cassette guide rail installing							
		(10) Double feed prevention roller (2nd tray of main body) (Cassette guide rail removing/ Double feed prevention roller cleaning)		●					Drum cleaner & Cleaning pad
		(11) Cassette guide rail installing							
		(12) Unit (cassette) and upper right side plate installing							
		1000 LCT paper feed unit							
		(13) Lower right plate and unit removing (LCT)							
		(14) Main body bottom plate & around paper feed unit		●					Blower brush & Cleaning pad
		(15) Sensors(4 positions of lower tray)		●					Blower brush
		(16) Gears (lower)				●			Plus guard No. 2
		(17) Conveyance Driven roller (Lower)		●					Drum cleaner & Cleaning pad
		(18) Swing/feed roller (1 position)		●					Drum cleaner & Cleaning pad
		(19) Double feed prevention roller (Cleaning after opening open/ close cover)		●					Drum cleaner & Cleaning pad
		(20) Unit (LCT) and lower right side plate installing							
		LCT horizontal conveyance unit							
		(21) Horizontal conveyance unit removing							
		(22) Sensors		●					Blower brush

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
11	Paper feed unit (Main body/LCT)	(23) Gears				●			Plus guard No. 2
		(24) Conveyance roller (Upper and Lower)		●					Drum cleaner & Cleaning pad
		(25) Swing/feed roller		●					Drum cleaner & Cleaning pad
		(26) Double feed prevention roller		●					Drum cleaner & Cleaning pad
		(27) Horizontal conveyance unit installing							
12	Reading section	(1) Platen glass/Slit glass		●					Drum cleaner & Cleaning pad
		(2) Exposure lamp		●					Blower brush
		(3) Reflection mirror		●					Cleaning pad
		(4) Lens		●					Blower brush & Cleaning pad
		(5) 1st, 2nd and 3rd mirror		●					Blower brush & Cleaning pad
		(6) White reference cover glass		●					Drum cleaner & Cleaning pad
		(7) APS sensor		●					Blower brush
		(8) Photo interrupter		●					Blower brush
		(9) Supply cord / Timing belt			●				
		(10) Wire tension			●				
		(11) Optics guide rail		●					Cleaning pad
13	Writing section	(1) Dust proof glass (Outside)		●					Blower brush & Cleaning pad
14	Fixing unit	(1) Oil pad removing							
		(2) Impregnated roller removing							
		(3) Fixing cleaning roller removing							
		(4) Fixing roller/Upper		●					Roller cleaner & Cleaning pad
		(5) Fixing roller/Lower (Paper exit guide plate removing)		●					Roller cleaner & Cleaning pad
		(6) Fixing claw/Upper & Lower		●					Drum cleaner & Cleaning pad
		(7) Paper exit roller		●					Drum cleaner & Cleaning pad
		(8) Exit paper conveyance roller (Right)/Guide rib		●					Drum cleaner & Cleaning pad
		(9) Decurler belt		●					Drum cleaner & Cleaning pad
		(10) Fixing entrance and exit guide plate		●					Drum cleaner & Cleaning pad
		(11) Fixing temperature sensor/2		●					Blower brush & Paper
		(12) Fixing gear oiling				●			Molytherm grease
		(13) Fixing cleaning roller (+ installing) 25SA5320*					●		
		(14) Oil impregnated roller (+ installing) 55FA5313*	1				●		
		(15) Oil pad (+ installing) 55FA-535*	1				●		
		(16) Insulating sleeve oiling	1			●			Tri-flow
		(17) Paper exit guide plate installing							
		(18) Fixing upper cover installing							
		(19) Jam clearance door installing							
		(20) Fixing unit installing							

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
15	Final check	(1) Toner supply			●			(●)	
		(2) L detection (with new developer) 47 - 95			●				
		(3) W.U.T measure and check			●				
		(4) Image check after changing consumables			●				
		(5) Copy sample check			●				
		(6) PM counter reset 47 - 90			●				
		(7) Drum counter reset 47 - 91			●				Drum counter reset at 2PM (300kc)
		(8) Leakage breaker reset			●				
		(9) Machine surroundings, Externals		●	●				Drum cleaner & Cleaning pad

2. RADF [DF-312] (Every 150,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
1	Paper feed section	(1) Paper feed roller		●					Drum cleaner & Cleaning pad
		(2) Separation roller		●					Drum cleaner & Cleaning pad
		(3) Double feed prevention pad		●					Drum cleaner & Cleaning pad
		(4) Paper dust removing pad		●					Blower brush
2	Conveyance section	(1) Regist sensor		●					Cleaning pad & Blower brush
		(2) Regist sensor mirror		●					Cleaning pad & Blower brush
		(3) Original conveyance sensor		●					Cleaning pad & Blower brush
		(4) Original conveyance sensor reflection part		●					Cleaning pad & Blower brush
		(5) Original reversing sensor		●					Cleaning pad & Blower brush
		(6) Original reversing sensor mirror		●					Cleaning pad & Blower brush

3. LCT [LT-352] (Every 150,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
1	Preparation	(1) Paper feeding check			●				
2	Inside of machine	(1) Sensors		●					Blower brush
		(2) Gears				●			Plus guard No.2
		(3) Conveyance roller/Driven roller		●					Dram cleaner / Cleaning Pad
		(4) Swing roller		●					Dram cleaner / Cleaning Pad
		(5) Feed roller		●					Dram cleaner / Cleaning Pad
		(6) Double feed prevention roller		●					Dram cleaner / Cleaning Pad
3	Final check	(1) Paper feeding check			●				
		(2) Externals		●	●				Dram cleaner / Cleaning Pad

4. FNS [FS-106] (Every 150,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
1	Preparation	(1) Paper through check			●				
2	Conveyance unit	(1) Conveyance roller		●					Drum cleaner & Cleaning pad
		(2) Swing roller 12QR5065*	1				●		
3	Paper exit unit	(1) Paper exit roller/A 122H4825*	10				●		
4	Drive unit	(1) Main drive unit *1			●	(●)			
		(2) Tray up and down unit *1			●	(●)			
		(3) Shift drive unit *1			●	(●)			
		(4) Paper exit drive unit *1			●	(●)			
		(5) Staple unit *1			●	(●)			
5	Stapler unit	(1) Staple cartridge *2 12QRK001*	2		●		(●)		
6	Final check	(1) Paper through check			●				
		(2) Exterior		●	●				Drum cleaner & Cleaning pad

*1: If abnormal sound is heard due to insufficient oil, apply oil (Plus guard No.2).

*2: This work confirms if the staple is exchanged by CE. (5,000 staples/1 cartridge)

5. FNS [FS-108BM] (Every 150,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
1	Preparation	(1) Paper through check			●				
2	Conveyance unit	(1) Conveyance roller		●					Drum cleaner & Cleaning pad
		(2) roller 122H4525*	1				●		
3	Paper exit unit	(1) Paper exit roller/A 122H4825*	10				●		
4	Drive unit	(1) Main drive unit *1			●	(●)			
		(2) Tray up and down unit *1			●	(●)			
		(3) Shift drive unit *1			●	(●)			
		(4) Paper exit drive unit *1			●	(●)			
		(5) Staple unit *1			●	(●)			
		(6) Fold unit *1			●	(●)			
5	Folding section	(1) Flat belt			●				
		(2) Folding roller		●					Drum cleaner & Cleaning pad
		(3) Pressurized roller		●					Drum cleaner & Cleaning pad
6	Stapler unit	(1) Staple cartridge 12QRK001* *2	2		●		(●)		
7	Final check	(1) Paper through and staple clinching condition check			●				
		(2) Exterior		●	●				Drum cleaner & Cleaning pad

*1: If abnormal sound is heard due to insufficient oil, apply oil (Plus guard No.2).

*2: This work confirms if the staple is exchanged by CE. (5,000 staples/1 cartridge)

6. PI [PI-108] (Every 150,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
1	Conveyance section	(1) Conveyance roller		●					Drum cleaner & Cleaning pad
2	Paper feed section	(1) Paper feed roller *1		●		(●)			Drum cleaner & Cleaning pad
		(2) Feed roller *1		●		(●)			Cleaning pad & Blower brush
		(3) Double feed prevention roller *1		●		(●)			Cleaning pad & Blower brush
3	Final check	(1) Paper through check			●				
		(2) Exterior		●	●				Cleaning pad & Blower brush

*1: If abnormal sound is heard due to insufficient oil, apply oil (Plus guard No.2).

[3] Periodic Check (Main Body)

1. Periodic check (I) (Every 300,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
1	Fixing unit	(1) Fixing roller/Upper 55FA5319*	1				●		
		(2) Fixing claw/Upper 25SA5315*	6				●		
		(3) Insulating sleeve / Upper 45405339*	2			●	●		Apply Tri - flow at replacement
2	Drum unit	(1) Separating claw 55FA-203*	3				●		
		(2) Drum	1				●		
3	Drive section (Filter parts)	(1) Developing suction filter 54007307*	1				●		
4	Reading section	(1) Dust proof filter 55TA-694*	1				●		

2. Periodic check (II) (Every 450,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
1	Paper feed unit	(1) Double feed prevention rubber 25SA4096*	8				●		Actual copy count: 100k copies
		(2) Paper supply rubber (by-pass) 54004056*	1				●		Actual copy count: 70k copies
		(3) Double feed prevention rubber (by-pass) 55FA4234*	1				●		Actual copy count: 70k copies
2	Fixing unit	(1) Ball bearing 45407504*	2				●		
		(2) Fixing roller/Lower 55FA5320*	1				●		
		(3) Fixing claw/Lower 25BA5333*	5				●		
		(4) Fixing rolling bearing 25SA7603*	2				●		
3	2nd paper feed unit	(1) Registration roller/lower 55TA4105*	1				●		
		(2) Registration roller/upper 55FA4106*	1				●		

3. Periodic check (III) (Every 900,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
1	Paper feed unit	(1) Feeding rubber/A 25AA4001*	4				●		Actual copy count: 800K copies
		(2) Paper feeding rubber (by-pass) 55FA4233*	1				●		Actual copy count: 140K copies
2	Fixing unit	(1) Fixing lamp/1 55TF8303*	1				●		
		(2) Fixing lamp/2 55TF8304*	1				●		
		(3) Fixing lamp/3 55FF8305*	1				●		
		(4) Paper exit drive gear/1 55TA7704*	1				●		
3	Drive unit	(1) Fixing input gear 25BA7726*	1				●		
4	Reversal paper exit unit	(1) Paper exit drive pulley/1 55TA7652*	1				●		
		(2) Paper exit drive gear/1 55TA7704*	2				●		

4. Periodic check (IV) (Every 1,800,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
1	Drum unit	(1) Solenoid press-in assembly 25SA-217*	1				●		
2	Paper feed unit (main unit/LCT)	(1) Middle conveyance clutch 55FA8204*	2				●		
3	2nd paper feed unit	(1) 2nd paper feed clutch 55TA8201*	1				●		
4	Transfer/ Separation corona unit	(1) Transfer/Separation corona unit ass'y 55TA-260*	1				●		
5	Drive unit	(1) Assist drive clutch 55FA8221*	1				●		

5. Periodic check (V) (Every 3,000,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
1	Drum unit	(1) Toner control board unit 25SA-910*	1				●		
2	Paper feed unit	(1) Paper feed regulation gear/Upper 25SA7726*	1				●		
3	Charging corona unit	(1) Charging corona unit (PCL included) 55WA-250*	1				●		
4	2nd paper feed unit	(1) TSL ass'y 5400-913*	1				●		
5	Developing unit	(1) Developing unit 55WA-300*	1				●		
6	Fixing unit	(1) Temperature sensor 2 25SA8844*	1				●		
7	ADU	(1) Conveyance pulley/C 25SA7659*	2				●		
		(2) ADU conveyance roller/E 25SA5016*	2				●		
8	Reversal paper feed unit	(1) Paper exit conveyance roller/ Upper 55TA4315*	1				●		
		(2) Paper exit conveyance roller/ Middle 55TA4316*	1				●		
		(3) Paper exit conveyance roller/ Lower 55TA4317*	1				●		
		(4) Carriage idle gear/B 46207720*	1				●		
		(5) Gear/E 30007719*	2				●		

6. Periodic check (VI) (Every 3,900,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
1	Paper feed unit	(1) Conveyance solenoid (Tray 1 – 4) 4 position for feeding 12EF8251*	4				●		Actual copy count: 1,000 k copies
		(2) LCT Clutch/3 (Tray 3/4 conveyance) 55FA8233*	1				●		Actual copy count : 2,000 K copies

[4] Periodic Check (RADF [DF-312])

1. Periodic check (I) (Every 300,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
1	Paper feed unit	(1) Paper feed roller 120A4582*	1				●		Original: 90K feeds
		(2) Forward rotation roller 120A4582*	1				●		Original: 90K feeds
		(3) Separation pad 120A-458*	1				●		Original: 90K feeds
		(4) Paper dust removing pad 129H-472*	1				●		Original: 90K feeds

2. Periodic check (II) (Every 1,500,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
1	Paper feed unit	(1) Pick-up clutch ass'y 129H-474*	1				●		Original: 450K feeds

[5] Periodic Check [LT-352]

1. Periodic check (I) (Every 450,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
1	Paper feed unit	(1) Double feed prevention rubber 25SA4096*	2				●		Actual copy count: 100K copies

2. Periodic check (II) (Every 900,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
1	Paper feed unit	(1) Feeding rubber / A 25AA4001*	1				●		Actual copy count: 800K copies

[6] Periodic Check [FS-106]

1. Periodic check (I) (Every 900,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
1	Processing unit	(1) Stapler unit 120H5040*	2				●		Guarantee period of the Stapler unit is 500k staples.

2. Periodic check (II) (Every 2,550,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
1	Drive unit	(1) Paper feed motor (Tray up/down unit motor) *1 12QR-485*	1				●		Actual feed count: 2,500K feeds

*1: When the motor is removed by CE, please remove it holding the up-down tray to paper exit with hand.

[7] FNS [FS-108BM]

1. Periodic check (I) (Every 900,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
1	Stapler unit	(1) Stapler unit 129U4266*	2				●		Guarantee period of the Stapler unit is 200K staples.

2. Periodic check (II) (Every 2,550,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
1	Drive unit	(1) Paper feed motor (Tray up / down unit motor) 129U-108*	1				●		Note:When the motors is removed by CE,please remove it holding the up-down tray to paper exit with hand. Actual feed counts 2,500K feeds.

[8] PI [PI-108]

1. Periodic check (I) (Every 450,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
1	Paper feed unit	(1) Feed roller unit/B 50BA-575*	1				●		Actual feed count : 100K feeds
		(2) Double feed prevention roller unit 13FG-406*	1				●		Actual feed count : 100K feeds

2. Periodic check (II) (Every 900,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
1	Paper feed unit	(1) Feed roller unit/A 50BA-574*	1				●		Actual feedcount : 200K feeds

[9] Actual Count Replacement Parts

Use frequency of the following parts differs depending on the use condition. Replace the parts in accordance with the each part counter in EKC

Unit	Part number	Parts name	Q'ty	Actual count	Parts count No.
Paper feed unit	12EF8251*	Conveyance solenoid (Tray-1 feed section)	1	1,000K copies	22
	12EF8251*	Conveyance solenoid (Tray-2 feed section)	1	1,000K copies	23
☆	55FA8203*	Paper feed clutch (Tray-1 feed section)	1	2,000K copies	22
☆	55FA8203*	Paper feed clutch (Tray-2 feed section)	1	2,000K copies	23
☆	09808253*	Original solenoid (By-pass feed)	1	1,000K copies	21
☆	25SA8202*	Paper feed clutch/B (By-pass feed)	1	2,000K copies	21
	25AA4001*	Feeding rubber/A (Tray1-4)	4	800K copies	22,23,24,25
	25SA4096*	Double feed prevention rubber (Tray1-4)	8	100K copies	22,23,24,25
	55FA4233*	Paper feed rubber (By-pass)	1	140K copies	21
	54004056*	Paper supply rubber (By-pass)	1	70K copies	21
	55FA4234*	Double feed prevention rubber (By-pass)	1	70K copies	21
Tray-3 (1000LCT)	12EF8251*	Conveyance solenoid (Tray-3, feed section)	1	1,000K copies	24
Tray-4 (1500LCT)	12EF8251*	Conveyance solenoid (Tray-4, feed section)	1	1,000K copies	25
☆	55FA8231*	LCT clutch/1 (Tray-3, feed section)	1	2,000K copies	24
☆	55FA8232*	LCT clutch/2 (Tray-4, feed section)	1	2,000K copies	25
	55FA8233*	LCT clutch/3 (Tray-3/4, Conveyance)	1	2,000K copies	Total of 24 and 25
LT-352 ☆	55FA8232*	LCT clutch/2 (Tray-5 feed section)	1	2,000K copies	20
	25AA4001*	Feeding rubber/A	1	800K copies	20
	25SA4096*	Double feed prevention rubber	2	100K copies	20
ADU ☆	55FA8221*	ADU drive clutch (Conveyance section)	1	2,000K copies	26
☆	25SA8222*	ADU drive clutch/B (Reversal section)	2	1,000K copies	26
DF-312	120A4582*	Paper feed roller	1	Original 90K feeds	28
	120A4582*	Forward rotation roller	1	Original 90K feeds	28
	120A-458*	Separation pad	1	Original 90K feeds	28
	129H-472*	Paper dust removing pad	1	Original 90K feeds	28
	129H-474*	Pick-up clutch ass'y	1	Original 450K feeds	28
FS-106	12QR-485*	Paper feed motor	1	2,500K feeds	27
	120H5040*	Stapler unit	2	Each 500K staples front/rear	Front: 19 Rear: 18
FS-108BM	129U-108*	Paper feed motor	1	2,500K feeds	27
	129U4266*	Stapler unit	2	Each 200K staples front/rear	Front:19 Rear:18
PI-108	50BA-575*	Feeding roller unit/B	1	100K feeds	17
	13FG-406*	Double feed prevention roller unit	1	100K feeds	17
	50BA-574*	Feeding roller unit/A	1	200K feeds	17

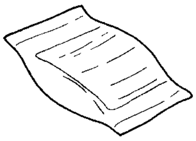
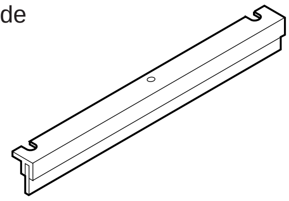
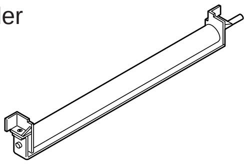
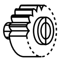
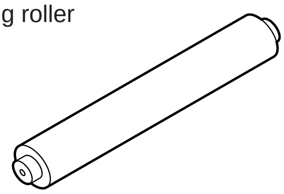
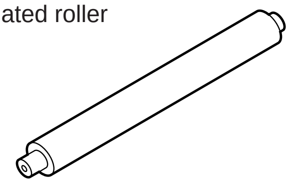
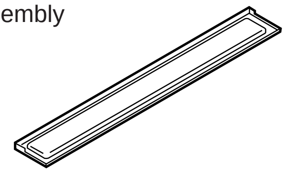
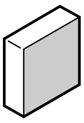
[Note]

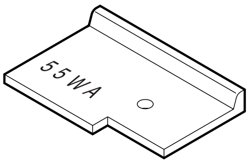
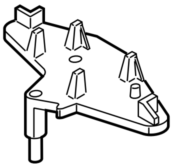
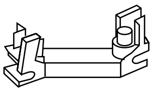
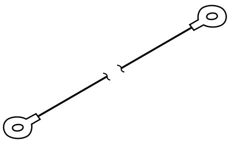
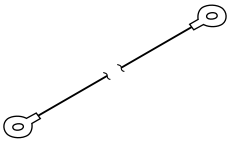
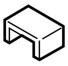
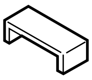
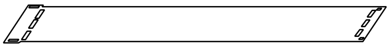
1. Presuming from the use frequency durability of the parts with ☆ marks is considered as the same as that of the main body (5,000,000 copies). However, check the counter at PM in case that the part is used frequently in particular.
2. Parts count No. is the No.displayed on the parts counter screen in the 25 mode ⑤ Parts counter.

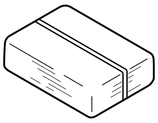
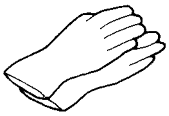
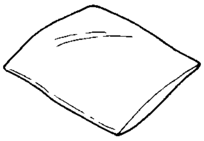
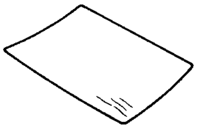
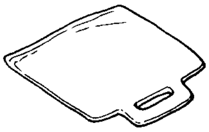
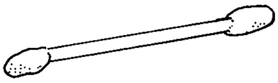
COPY MATERIALS

[1] Maintenance Kit Construction

1. Construction (150,000 copies/kit)

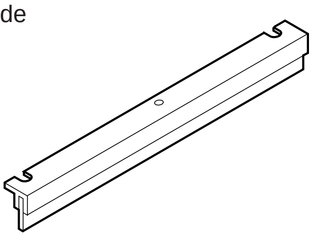
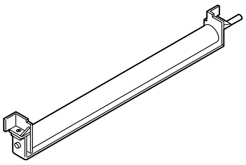
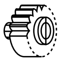
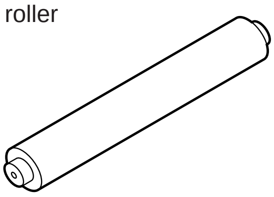
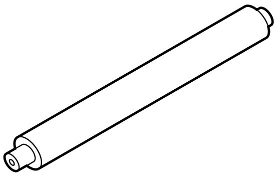
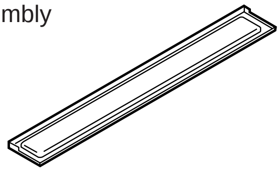
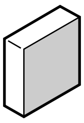
Name	Quantity
Developer 	1
Cleaning blade 	1
Toner guide roller 	1
Cleaner idler gear 	1
Fixing cleaning roller 	1
Oil impregnated roller 	1
Oil pad assembly 	1
Filter K 	1

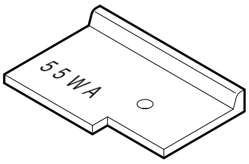
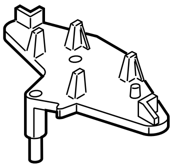
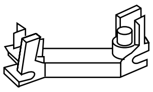
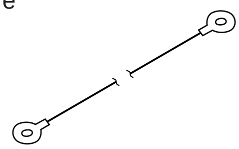
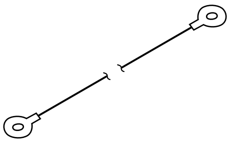
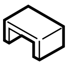
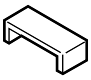
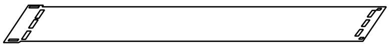
Name	Quantity
Charging cover / Rear 	1
Charging cleaning block / A assembly 	1
Charging cleaning block / B assembly 	1
Charging wire 	1
Discharging wire (transfer/separation corona unit) 	3
Transfer unit cleaning block/upper assembly 	1
Separation unit cleaning block/upper assembly 	1
Charging control plate 	1

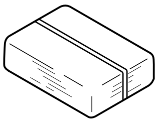
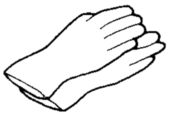
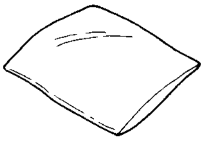
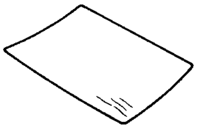
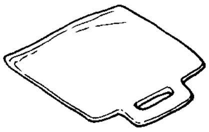
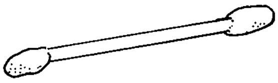
Name	Quantity
Cleaning pad (10 sheets) 	3
Polyethylene gloves 	1 set
Dust bag (rubber band) 	1
Developer collecting sheet (rubber band) 	1
Vanity bag for collection 	1
Cotton swabs (4 pcs.) 	1

[2] PM Kit Construction

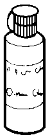
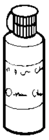
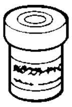
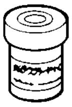
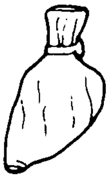
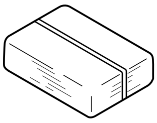
1. Construction (150,000 copies/kit)

Name	Quantity
Cleaning blade 	1
Toner guide roller 	1
Cleaner idler gear 	1
Fixing cleaning roller 	1
Oil impregnated roller 	1
Oil pad assembly 	1
Filter K 	1

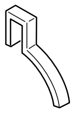
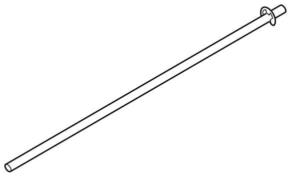
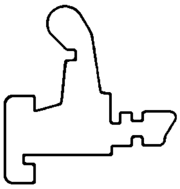
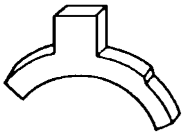
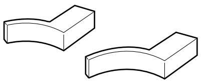
Name	Quantity
Charging cover / Rear  	1
Charging cleaning block / A assembly 	1
Charging cleaning block / B assembly 	1
Charging wire 	1
Discharging wire (transfer/Separation corona unit) 	3
Transfer unit cleaning block/upper assembly 	1
Separation unit cleaning block/upper assembly 	1
Charging control plate 	1

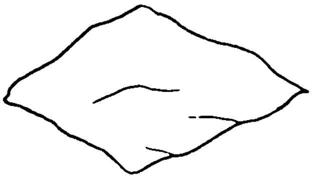
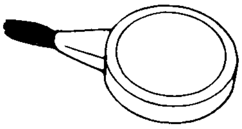
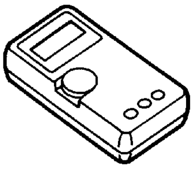
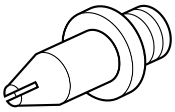
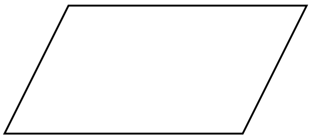
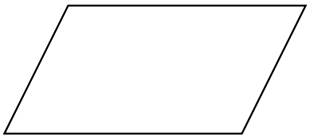
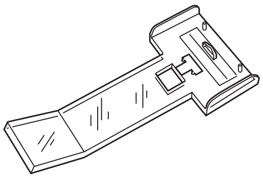
Name	Quantity
Cleaning pad (10 sheets) 	3
Polyethylene gloves 	1 set
Dust bag (rubber band) 	1
Developer collecting sheet (rubber band) 	1
Vanity bag for collection 	1
Cotton swabs (4 pcs.) 	1

SERVICE MATERIALS LIST

Material No.	Description	Shape	Remark
000V-16-0	Drum cleaner	 200 ml	
000V-17-0	Roller cleaner	 200 ml	
00GR00020	Plus guard No. 2	 25 g	
00GR00150	Molytherm grease	 25 g	
000V-19-0	Setting powder	 25 g	
000V-18-0	Cleaning pad	 10 pcs 1 pack	

SPECIAL TOOLS LIST

Tool No.	Description	Shape	Quantity	Remark
7050K0010	Temp. sensor PS adjusting jig		1	
7050K0020	Optics position adjusting jig		2	
00M6-2-00	Door switch jig		1	
00M8-1-00	Thermostat PS adjusting jig (upper roller)		1	
00M8-2-00	Thermostat PS adjusting jig (lower roller)		1	
00VD-5000	New pyramid chart		1	

Tool No.	Description	Shape	Quantity	Remark
00VC-2-00	Drum cover		1	
00VD-1000	Blower brush		1	
00VE-1004	Tester	 (00VE-1004)	1	
120A1052*	PS jig		2pc/1set	DF-311/DF-312
120A9711*	ADJ chart		1	DF-311/DF-312
120A9712*	White chart		1	DF-311/DF-312
129XJG011	Stapler PS jig		1	FS-108BM

Konica

7065

SERVICE HANDBOOK

Jan. 2000
Ver. 3.0

KONICA CORPORATION
TECHNOLOGY SUPPORT CENTER
TOKYO JAPAN

MC-Service

SAFETY AND IMPORTANT WARNING ITEMS

Read carefully the Safety and Important Warning Items described below to understand them before doing service work.

IMPORTANT NOTICE

Because of possible hazards to an inexperienced person servicing this copier, as well as the risk of damage to the copier, Konica Corporation, strongly recommends that all servicing be performed only by Konica-trained service technicians.

Changes may have been made to this copier to improve its performance after this Service Handbook was printed. Accordingly, Konica Corporation, makes no representations or warranties, either expressed or implied, that the information contained in this Service Handbook is complete or accurate. It is understood that the user of this Service Handbook must assume all risks or personal injury and/or damage to the copier while servicing the copier for which this Service Handbook is intended.
Therefore, this Service Handbook must be read carefully before doing service work both in the course of the technical training and even after that, for keeping the correct maintenance and control of the copier.
Keep this Service Handbook also for the future service. When it is impossible to read the description about safety and warning (due to contamination or tear), the relevant page should be replaced.

DESCRIPTION ITEMS FOR DANGER, WARNING AND CAUTION

In this Service Handbook, each of three expressions, "⚠ DANGER", "⚠ WARNING" and "⚠ CAUTION" is defined as follows together with a symbol mark to be used in a limited meaning.
When servicing, the relevant works (disassembling, assembling, adjustment, repair and maintenance) need to be conducted with utmost care.

⚠ DANGER:	**Actions having a high possibility of suffering death or serious wound**
⚠ WARNING:	**Actions having a possibility of suffering death or serious wound**
⚠ CAUTION:	**Actions having a possibility of suffering a slight wound, medium trouble and material damage**

SAFETY WARNINGS

[1] MODIFICATIONS NOT AUTHORIZED BY Konica

Konica copiers are renowned for their high reliability. This reliability is achieved through high-quality design and a solid service network.

Photocopier design is a highly complicated and delicate process where numerous mechanical, physical, and electrical aspects have to be taken into consideration, with the aim of arriving at proper tolerances and safety factors. For this reason, unauthorized modifications involve a high risk of degrading performance and safety. Such modifications are therefore strictly prohibited. The points listed below are not exhaustive, but they illustrate the reasoning behind this policy.

⚠ **PROHIBITED ACTIONS :**

(1) Using extension cables or a different power cord than specified by Konica.
(2) Using other fuses than specified by Konica. Safety will not be assured, leading to a risk of fire and injury.
(3) Disabling fuses or bridging fuse terminals with wire, metal clips, solder or similar. (This applies also to thermal fuses.)
(4) Removing air filters (except for replacement).
(5) Disabling relay functions (such as wedging paper between relay contacts, etc.).
(6) Disabling safety functions (interlocks, safety circuits, etc.). Safety will not be assured, leading to a risk of fire and injury.
(7) Performing actions to copier not described in the instruction manual or the service handbook.
(8) Using parts other than specified by Konica.

[2] CHECKPOINTS WHEN PERFORMING ON-SITE SERVICE

Konica copiers are extensively tested before shipping, to ensure that all applicable safety standards are met, in order to protect the customer and customer engineer from the risk of injury. However, in daily use, any electrical equipment may be subject to parts wear and eventual failure. In order to maintain safety and reliability, the customer engineer must perform regular safety checks.

1. Advance Preparation for Safety Checks

⚠ **CAUTION:**

(1) Wear clothing that facilitates work and is designed for safety.
(2) Carry out all procedures carefully to prevent injury.
(3) Be sure to disconnect the power cord of the copier and all optional equipment from the AC outlet.
Simply turning off the power switch is not sufficient, because paper feed units or other electrical equipment may be powered also when the power switch is turned off.
(4) Proceed with special care when performing operation checks or adjustment while the unit is powered. When carrying out operation checks or adjustment while external covers are removed, the risk of electrical shock exists when touching parts which carry high voltage or electrical charge. The risk of injury exists when touching moving parts such as gears or chains.

2. Safety Checkpoints

The following list is not exhaustive, but it includes actions which must be carried out at every on-site service.

⚠ **CAUTION:**

(1) Check external covers and the frame for sharp edges, burrs, or nicks.
(2) Check external covers and hinges for loosening or damage.
(3) Check wiring for squeezing or damage.
(4) Check power cord for insulation problems (conductor must not be exposed).
(5) Check power cord and cable ties etc. for loosening from frame.

⚠ **WARNING:**

(1) Verify that the copier is properly grounded. If a problem is detected, establish a proper ground connection.
(2) Connecting the ground lead to an improper point such as listed below results in a risk of explosion and electric shock.
Unsuitable ground points:
- **Gas pipe**
- **Lightning rod**
- **Telephone line ground**
- **Plastic water pipe or water pipe or faucet that has not been approved by authorities for grounding use**

3. Description of Safety Checks

⚠ CAUTION:

(1) Before performing safety check work, read all relevant documentation (service handbook, technical notices, etc.) and proceed according to the prescribed procedure, using only the prescribed tools. Do not carry out any adjustments not described in the documentation.

(2) If the power cord is damaged, replace it only with the specified power cord. If the power cord insulation has been damaged and there are exposed sections, short-circuits and overheating may occur, leading to a serious fire risk.

(3) Do not route the power cord so that it can be stepped on or pinched. Otherwise overheating may occur, leading to a serious fire risk.

(4) When disconnecting any cables, always grasp the connector and not the cable (especially in the case of AC and high-voltage leads).

(5) Carefully remove all toner remnants from electrical parts, electrodes, etc.

(6) Make sure that wiring cannot come into contact with sharp edges, burrs, or other pointed parts.

(7) Double-check to make sure that all screws, components, wiring, connectors, etc. that were removed for safety check maintenance have been reinstalled in the original location. (Pay special attention to forgotten connectors, pinched cables, forgotten screws, etc.)

(8) When installation and preventive maintenance, verify that the power cord has been securely plugged into the AC outlet. Contact problems may lead to increased resistance, overheating, and the risk of fire.

⚠ WARNING:

(1) Before disassembling or adjusting the write unit or any parts that use a laser, make sure that the power cord has been disconnected.

(2) Do not remove the main cover of the write unit. Direct exposure of the eye to laser beams may lead to blindness.

(3) Do not turn the copier on while the write unit is not installed in its normal position.

(4) Danger of explosion if battery is incorrectly replaced, replace only with the same or equivalent recommended by the manufacturer. Discard used batteries according to the manufacture's instructions.

⚠ VORSICHT:

(4) Expiosionsgefahr dei unsachegemäßem Austausch der Battetie. Ersatz nur durch denselben oder einen vom. Hersteller empfohlenen gleichwertigen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

[3] HANDLING OF MATERIALS FOR SERVICING

⚠ CAUTION: Drum cleaner (alcohol-based) and roller cleaner (acetone- based) are highly flammable and must be handled with care. When using these materials for cleaning of copier parts, observe the following precautions.

(1) Disconnect the power cord from the AC outlet.

(2) Use only a small amount of cleaner at a time and take care not to spill any liquid. If this happens, immediately wipe it off.

(3) Perform cleaning only in an environment where sufficient ventilation is assured. Breathing large quantities of organic solvents can lead to discomfort.

(4) Do not replace the cover or turn the unit on before any solvent remnants on the cleaned parts have fully evaporated.

⚠ CAUTION: Toner and developer are not harmful substances, but care must be taken not to breathe excessive amounts or let the substances come into contact with eyes etc. It may be stimulative. If the substances get in the eye, rinse it with plenty of water immediately. When symptoms are noticeable, consult a physician.

[4] MEASURES TO TAKE IN CASE OF AN ACCIDENT

(1) If an accident has occurred, the distributor who has been notified first must immediately take emergency measures to provide relief to affected persons and to prevent further damage.

(2) If a report of a serious accident has been received from a customer, an on-site evaluation must be carried out quickly and Konica Corporation must be notified.

(3) To determine the cause of the accident, conditions and materials must be recorded through direct on-site checks, in accordance with instructions issued by Konica Corporation.

(4) For reports and measures concerning accidents, consult your superior, and follow the regulations set in "Standards for the Control Program for Measures Against Electrical Equipment Accidents".

[5] CONCLUSION

(1) Safety of users and customer engineers depends highly on accurate maintenance and administration. Therefore, safety can be maintained by the appropriate by the proper daily service work conducted by the customer engineer.

(2) When performing service, each copier on the site must be tested for safety. The customer engineer must verify the safety of parts and ensure appropriate management of the equipment.

SAFETY INFORMATION

IMPORTANT INFORMATION

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products manufactured since August 1, 1976. Compliance is mandatory for products marketed in the United States.

This copier is certified as a "Class 1" laser product under the U.S.
Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968. Since radiation emitted inside this copier is completely confined within protective housings and external covers, the laser beam cannot escape during any phase of normal user operation.

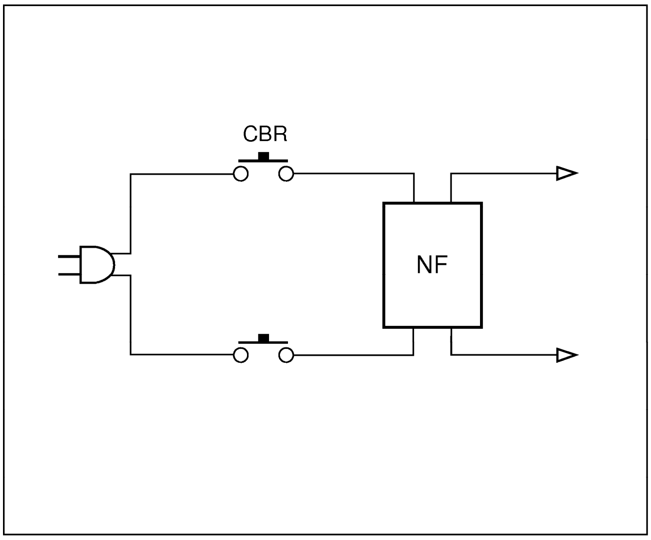
SAFETY CIRCUITS

The electrical circuit of this machine contains the following safety circuits to prevent an accident from occurring in the event of an abnormality.

[1] Overall safety circuit protector
[2] L2, L3, L4 (fixing heater lamp) overheating protection circuit

These safety circuits are described below to provide the service engineer with a renewed awareness of them in order to prevent servicing errors that may impair their function.

[1] Overall Safety Circuit Protector

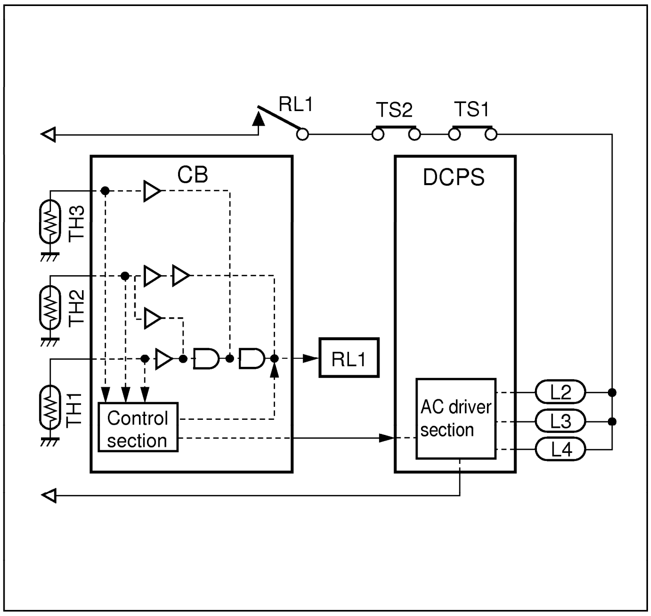


1. **Protection function provided by the CBR (circuit breaker)**

   This function breaks the AC line instantaneously in the event that an excessive current flows due to a short between the AC line, for example.

⚠CAUTION: **The function of the CBR must not be de-activated under any circumstances whatever.**

[2] L2, L3, L4 (fixing heater lamp) Overheating Protection Circuit



1. **Protection function provided by software**

   This function turns OFF L2 (fixing heater lamp 1), L3 (fixing heater lamp 2), L4 (fixing heater lamp 3) and RL1 (main relay) in the event that the output voltage from TH1 (fixing temperature sensor 1) read the CPU is abnormal.

⚠CAUTION: **DO NOT change the clearance between the roller and TH1. When replacing, check that the specified installation measurement is correct.**
The function of RL1 must not be de-activated under any circumstances.

2. **Protection function provided by hardware (circuit)**

   This function uses a comparator circuit which compares the output voltage of TH1, TH2 (fixing temperature sensor 2) or TH3 (fixing temperature sensor 3) with the abnormal judgment reference value.

   It disconnects L2, L3, L4 and RL1 from the circuit in the event that the output voltage of TH1, TH2 or TH3 exceeds the reference value.

⚠CAUTION: **Periodically check the contact face of TH2 with respect to the roller, and replace TH2 if it is abnormal.**
DO NOT change the clearance between the roller and TH1, TH3. When replacing, check that the specified installation measurement is correct.
The function of RL1 must not be de-activated under any circumstances.

3. Protection function provided by TS1 (thermostat (upper)) and TS2 (thermostat (lower))

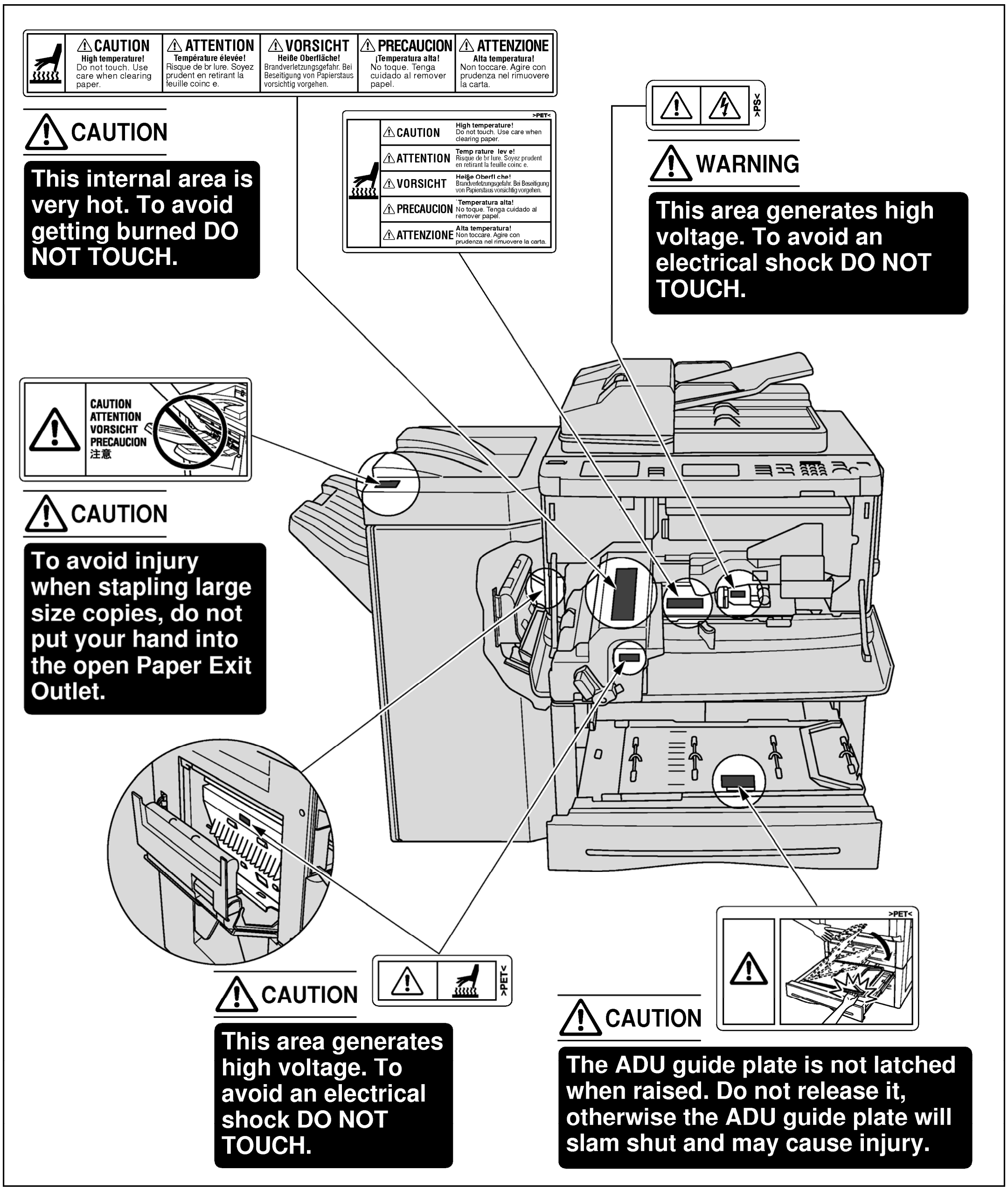
This function turns OFF TS1 if the temperature of the fixing upper roller exceeds the specified value and turns OFF TS2 if the temperature of the fixing lower roller exceeds the specified value, directly cutting off the power to L2, L3 and L4.

⚠**CAUTION: Do not substitute a different electrical conductor in place of TS1 or TS2.**

MC-Service

INDICATION OF WARNING ON THE MACHINE

The caution labels are attached to the machine areas, as shown below, where you are advised to pay special attention to avoid any dangerous situations or serious injury.


⚠CAUTION High temperature! Do not touch. Use care when clearing paper.
⚠ATTENTION Température élevée! Risque de brûlure. Soyez prudent en retirant la feuille coincée.
⚠VORSICHT Heiße Oberfläche! Brandverletzungsgefahr. Bei Beseitigung von Papierstaus vorsichtig vorgehen.
⚠PRECAUCION ¡Temperatura alta! No toque. Tenga cuidado al remover papel.
⚠ATTENZIONE Alta temperatura! Non toccare. Agire con prudenza nel rimuovere la carta.
>PET<
⚠CAUTION High temperature! Do not touch. Use care when clearing paper.
⚠ATTENTION Température élevée! Risque de brûlure. Soyez prudent en retirant la feuille coincée.
⚠VORSICHT Heiße Oberfläche! Brandverletzungsgefahr. Bei Beseitigung von Papierstaus vorsichtig vorgehen.
⚠PRECAUCION ¡Temperatura alta! No toque. Tenga cuidado al remover papel.
⚠ATTENZIONE Alta temperatura! Non toccare. Agire con prudenza nel rimuovere la carta.
>PS<
CAUTION
ATTENTION
VORSICHT
PRECAUCION
注意
>PET<
>PET<

⚠CAUTION

This internal area is very hot. To avoid getting burned DO NOT TOUCH.

⚠WARNING

This area generates high voltage. To avoid an electrical shock DO NOT TOUCH.

⚠CAUTION

To avoid injury when stapling large size copies, do not put your hand into the open Paper Exit Outlet.

⚠CAUTION

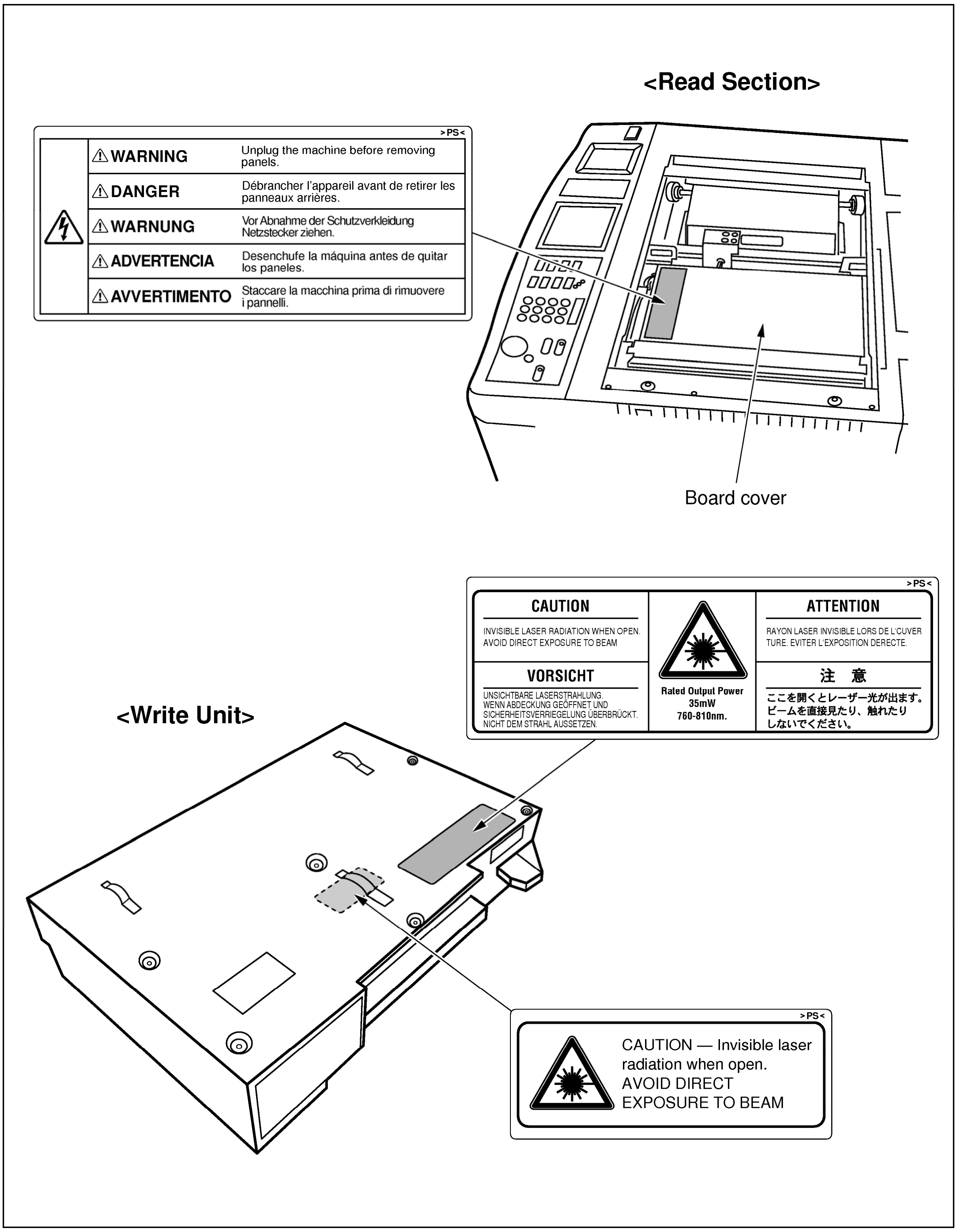
This area generates high voltage. To avoid an electrical shock DO NOT TOUCH.

⚠CAUTION

The ADU guide plate is not latched when raised. Do not release it, otherwise the ADU guide plate will slam shut and may cause injury.

⚠CAUTION:

You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.
Do not remove caution labels. If any caution label or caution indicator is soiled, clean the label. If you cannot make it legible or if the caution label is removed, please contact your Service Centre.



⚠ **WARNING**	Unplug the machine before removing panels.
⚠ **DANGER**	Débrancher l'appareil avant de retirer les panneaux arrières.
⚠ **WARNUNG**	Vor Abnahme der Schutzverkleidung Netzstecker ziehen.
⚠ **ADVERTENCIA**	Desenchufe la máquina antes de quitar los paneles.
⚠ **AVVERTIMENTO**	Staccare la macchina prima di rimuovere i pannelli.

CAUTION

INVISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM

VORSICHT

UNSICHTBARE LASERSTRAHLUNG. WENN ABDECKUNG GEÖFFNET UND SICHERHEITSVERRIEGELUNG ÜBERBRÜCKT. NICHT DEM STRAHL AUSSETZEN.

Rated Output Power
35mW
760-810nm.

ATTENTION

RAYON LASER INVISIBLE LORS DE L'CUVERTURE. EVITER L'EXPOSITION DERECTE.

注　意

ここを開くとレーザー光が出ます。ビームを直接見たり、触れたりしないでください。

CAUTION — Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM

⚠CAUTION:

You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.
Do not remove caution labels. If any caution label or caution indicator is soiled, clean the label. If you cannot make it legible or if the caution label is removed, please contact your Service Centre.

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1

PROCESS

OUTLINE AND COMPOSITION

In this digital copying machine, optical data (light beam) reflected from the original is converted into electrical signals, subjected to image processing, then converted back into optical data (light beam) and directed onto the drum.
Figure 1 shows the composition of the machine, and Fig.2 an outline of the digital copying process.

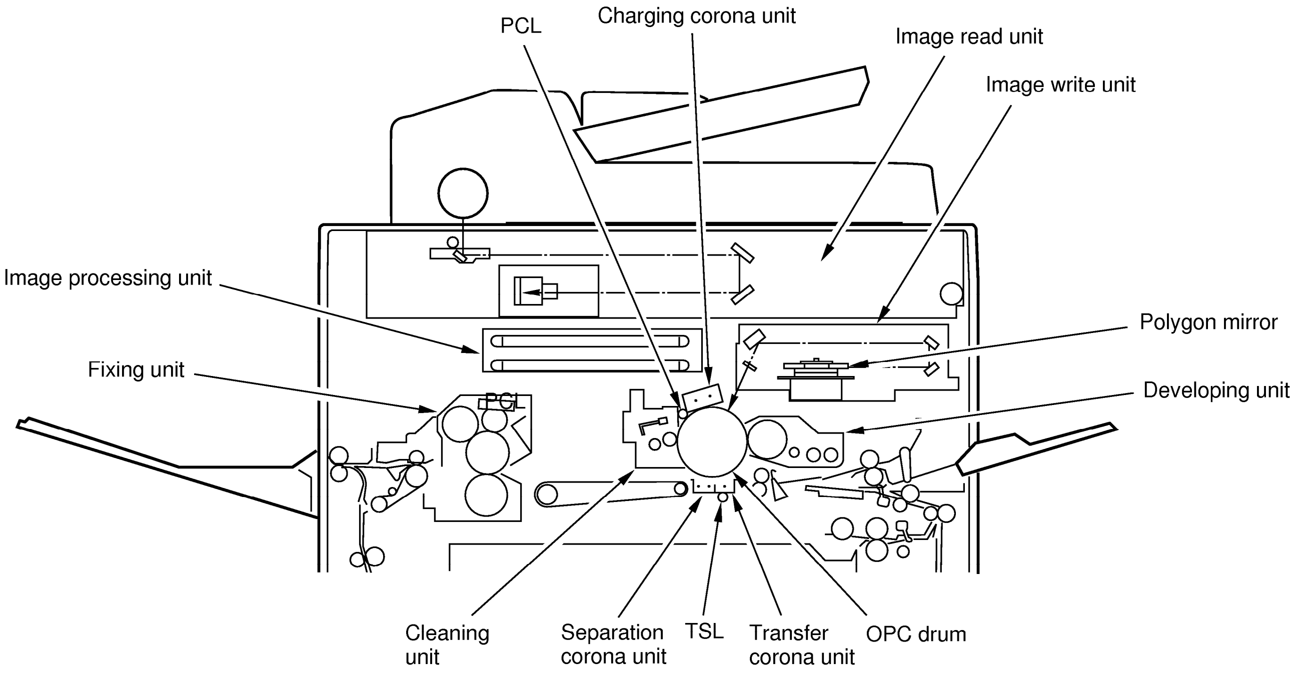

PCL
Charging corona unit
Image read unit
Image write unit
Image processing unit
Polygon mirror
Fixing unit
Developing unit
Cleaning unit
Separation corona unit
TSL
Transfer corona unit
OPC drum

Fig.1

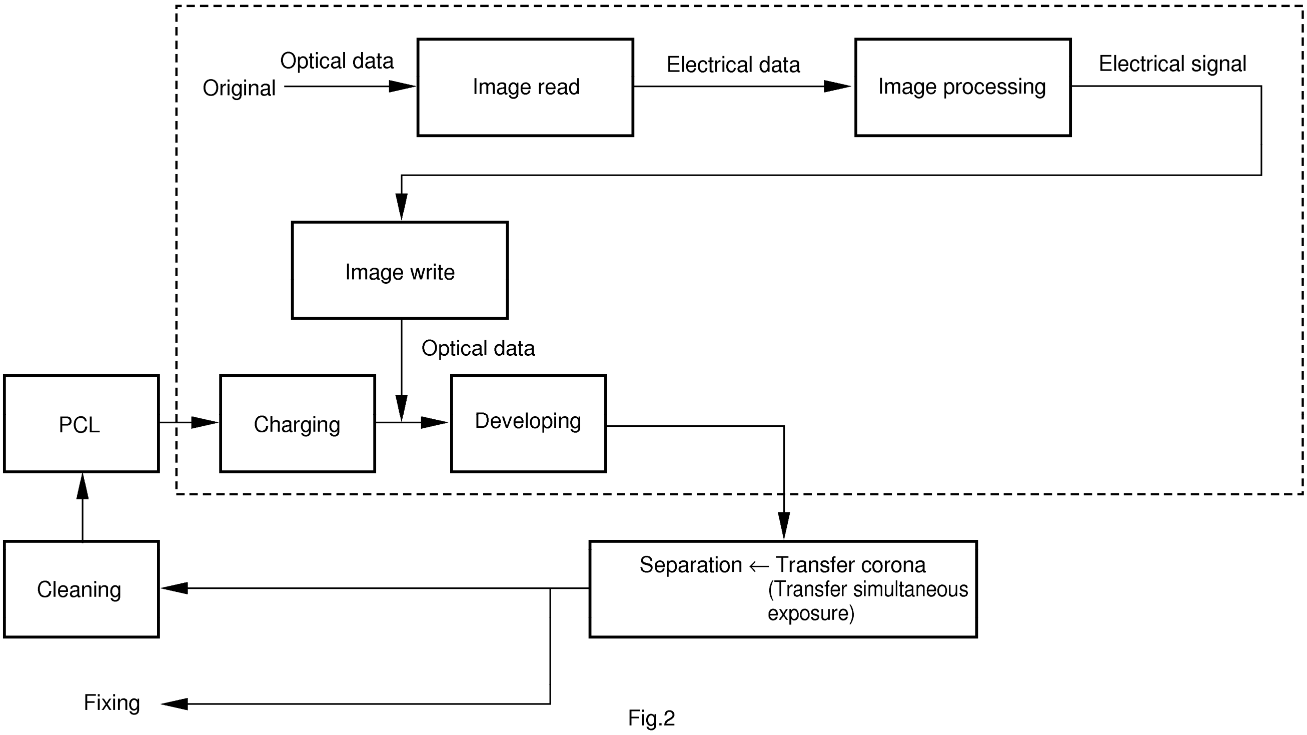

Optical data
Original
Image read
Electrical data
Image processing
Electrical signal
Image write
Optical data
PCL
Charging
Developing
Cleaning
Separation ← Transfer corona
(Transfer simultaneous exposure)
Fixing

Fig.2

IMAGE READ MECHANISM

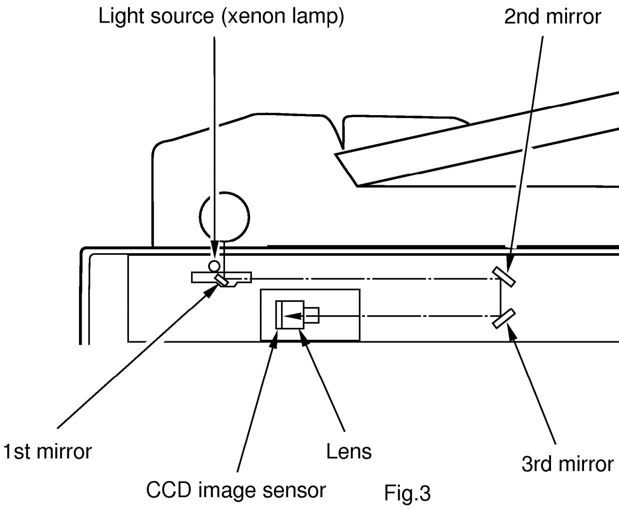

Light source (xenon lamp)
2nd mirror
1st mirror
Lens
3rd mirror
CCD image sensor

Fig.3

[1] Outline

A xenon lamp is used as the light source, and the light from the lamp is directed onto the original.
The light reflected off the original is reflected by the 1st, 2nd and 3rd mirrors shown in Fig.1, then passed through the lens and directed onto the CCD image sensor.
The CCD image sensor consists of 5000 pixels. One pixel is 7 µm in length, and the length on the original that can be read by one pixel is 63.5 µm.

IMAGE PROCESSING

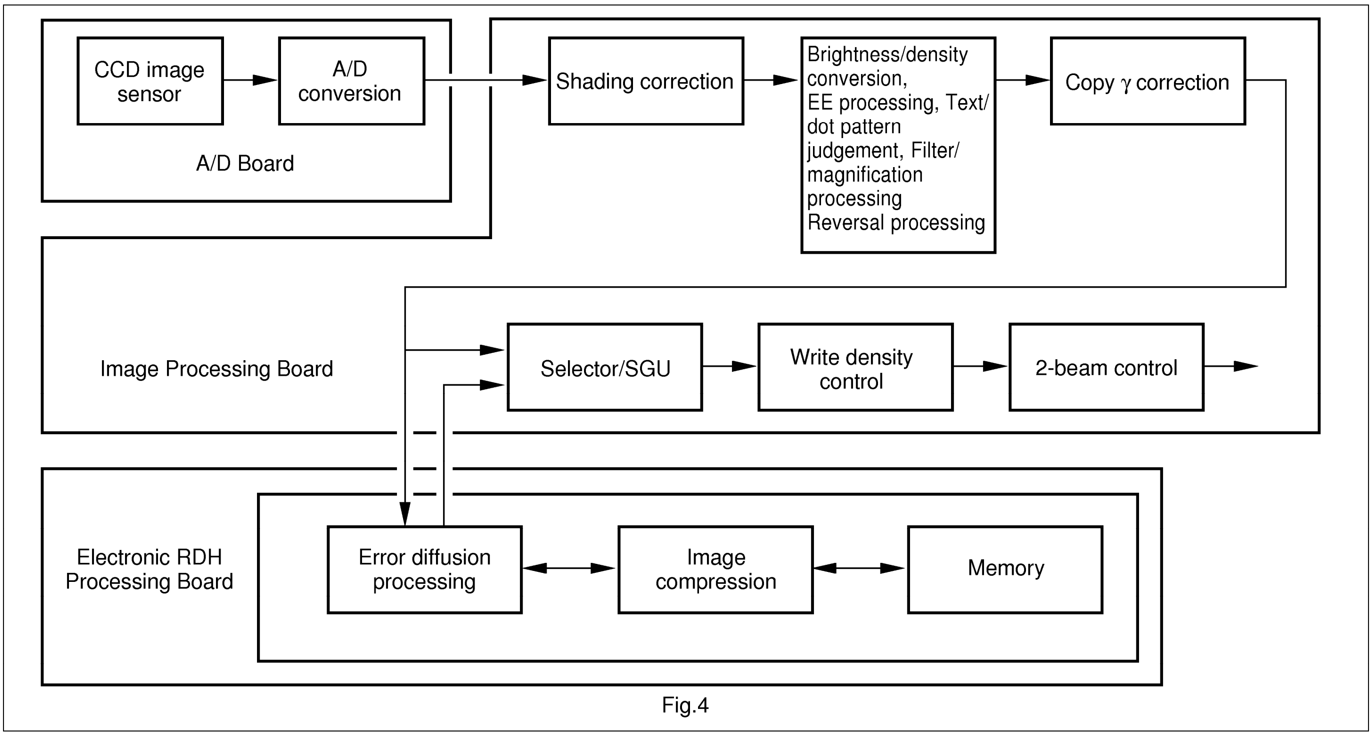

CCD image sensor
A/D conversion
A/D Board
Shading correction
Brightness/density conversion, EE processing, Text/ dot pattern judgement, Filter/ magnification processing Reversal processing
Copy γ correction
Image Processing Board
Selector/SGU
Write density control
2-beam control
Electronic RDH Processing Board
Error diffusion processing
Image compression
Memory

Fig.4

[1] Outline

The analog signal produced by opto-electric conversion by the CCD image sensor on the A/D board is subjected to analog processing, then A/D-converted, and transmitted to image processing board.

Image processing consists of shading correction, brightness/ density conversion, EE processing, text/dot pattern judgement, filter/magnification change processing, copy γ correction, write density control, and 2-beam control. In addition, Error diffusion processing and image compression are carried out within Electronic RDH.

[2] Analog Processing

In the analog processing board, the minute image signals from the CCD image sensor are amplified and also level-shifted into the A/D conversion range.

Amplification and level-shifting take place automatically at the shading correction timing by an electronic variable resistor, hence there is no need to perform manual adjustment.

[3] A/D Conversion

The image signals from the analog processing board are converted one pixel at a time into 9-bit digital signals.

[4] Shading Correction

Shading correction is done to even out the light distribution of the CCD image sensor. The following correction takes place at the specified timing.

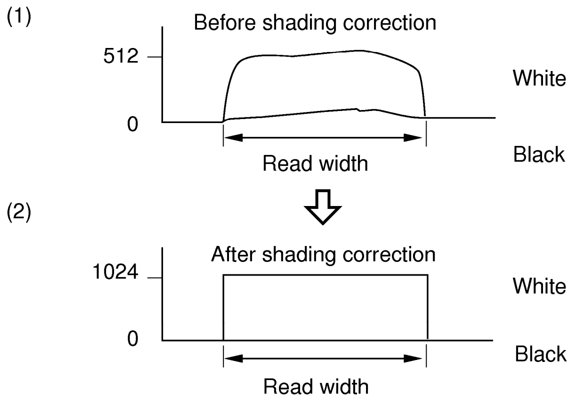
1. White correction

The voltage output from each pixel of the CCD image sensor when the white reference plate is exposed to the light from the exposure lamp is memorized as the maximum output value for that pixel.

2. Black correction

The output voltage from each pixel of the CCD image sensor when the exposure lamp is out is memorized as the minimum output voltage for that pixel.

* Based on the difference between the white and black data for each pixel memorized in 1 and 2 above, the calculated result that indicates the number of the step corresponding to the image data read from the original is output to an accuracy of 10 bits.



(1)····Output before shading correction
(2)····Output after shading correction

Fig.5

[5] Brightness/Density Conversion

The signal resulting from shading correction corresponds to the light reflected off the original, hence it is generally called a brightness signal. The brightness/density conversion section converts the brightness signal into a 8 bit density data, as shown below.

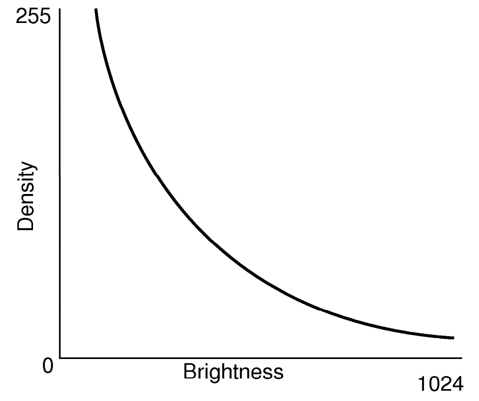


Fig.6

[6] EE Processing

A density that is suitable for the density of the original is automatically selected by EE processing, and a suitable copy made.

[7] Text/Dot Pattern Judgement

In order to copy an original under the optimum conditions, the text/dot pattern judgement section judges whether the read part is text, dot pattern or a photograph, and uses the results in the subsequent filtering section.

[8] Filtering

Appropriate filtering takes place according to the kind of original and the selected magnification.

(1) Text filter .... Highlights the light and dark parts of the original.
(2) Dot pattern filter ..... Reduces moire.
(3) Photograph filter .... Improves the gray scale reproduction.

[9] Magnification Processing

In an analog copying machine, the horizontal magnification is changed by changing the scanning speed of the exposure unit, and the vertical magnification by changing the position of the lens. In this machine, the horizontal magnification is changed by changing the scanning speed of the exposure unit, and the vertical magnification by means of electrical image processing. The read unit of the CCD (63.5 µm) and the write unit of the laser (63.5 µm) are equal to each other, and remain unchanged when the copy image is enlarged or reduced in the vertical direction. As a result, write data that corresponds exactly to the write position when the image is enlarged or reduced in the vertical direction sometimes fails to exist.

1. Vertical magnification change processing during enlargement

As shown in the example of Fig.10, if the pixel data obtained when the original is read by the CCD is D_1 to D_5, the positions of the read data when the image is enlarged are E_1 to E_5. However, the following problems will occur if the write data consists of this read data alone.

(a) There will be a gap between one data and the next, resulting in gaps in the image.

(b) The data position and write position will not coincide exactly.

Consequently, if read data that corresponds exactly to the write position fails to exist, as indicated by the dotted lines of Fig.10, the write density is determined as shown below.

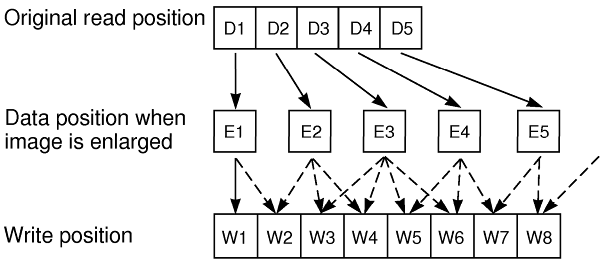


Fig.10

2. Vertical magnification change processing during reduction

As shown in the example of Fig.11, if the pixel data obtained when the original is read by the CCD is D1 to D5, the positions of the read data when the image is reduced overlap each other as indicated by R1 to R5, hence the write positions fail to coincide with the write positions.Therefore, the write density is determined as shown below.

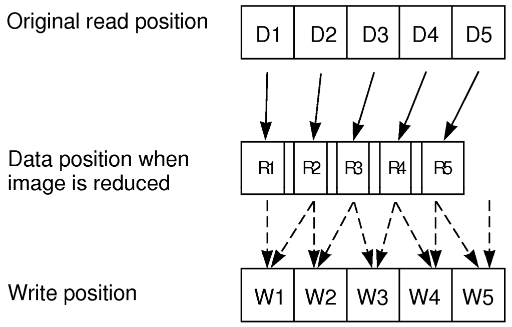


Fig.11

3. Density correction

Figure 12 is a graph the vertical axis of which represents density (256 steps) and the horizontal axis of which represents position: Here, the distance between E_2 and E_1 of Fig.10 is set out on the horizontal axis and divided into 16 steps. If the position with respect to write data W_2 is " ℓ ", the density S can be obtained using the following equation.

$$S = E_1 + \left(\frac{E_2 - E_1}{16}\right) \times \ell$$

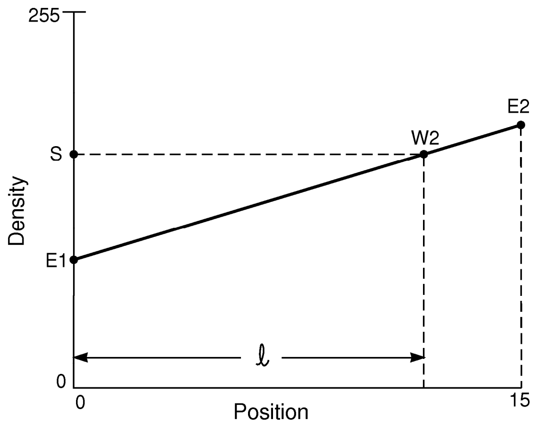


Fig.12

[10] Reversal Processing

This function reverses the input brightness data in order to reverse black and white when the reverse copy mode is selected.

[11] Copy γ Correction

The copy γ correction function selects the density curve corresponding to the density selected by the density button on the operation panel.
Suitable density curves are provided for the text, photo and text photo modes.

[12] Selector, SGU

Selector is a function that switches between the image signal from the Electronic RDH, and the read time image processed signal.
SGU is a function that generates various test patterns.

[13] Write Density Control

The write density control function converts image data to the optimum laser exposure based on the characteristics related to the drum such as drum potential, toner density, etc.

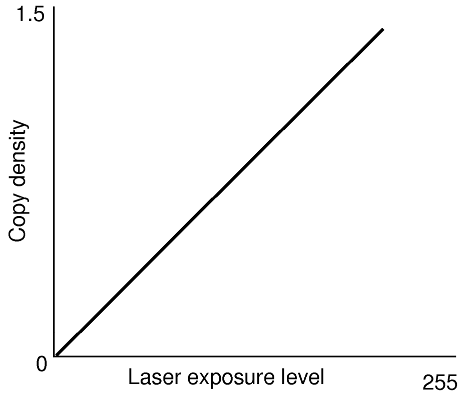


Fig.13

[14] Error Diffusion Processing

Error diffusion processing is intended to make efficient use of the installed memory and also to obtain a satisfactory copy image.

[15] Image Compression Processing

This processing function stores compressed image data in the memory to enable a large quantity of image data to be stored when Electronic RDH is used.

[16] Memory

The memory can hold about 180 pages of A4 sized originals consisting of average word processor text. The number of pages will be less than this, if the originals include many photographs and dot pattern images. Expansion memory units MU-103 are available as an option.

## [17] 2-beam Control

This function is used to adjust the timing of the laser data from the two beams and also to detect and correct any deviation between the two beams.

IMAGE WRITE

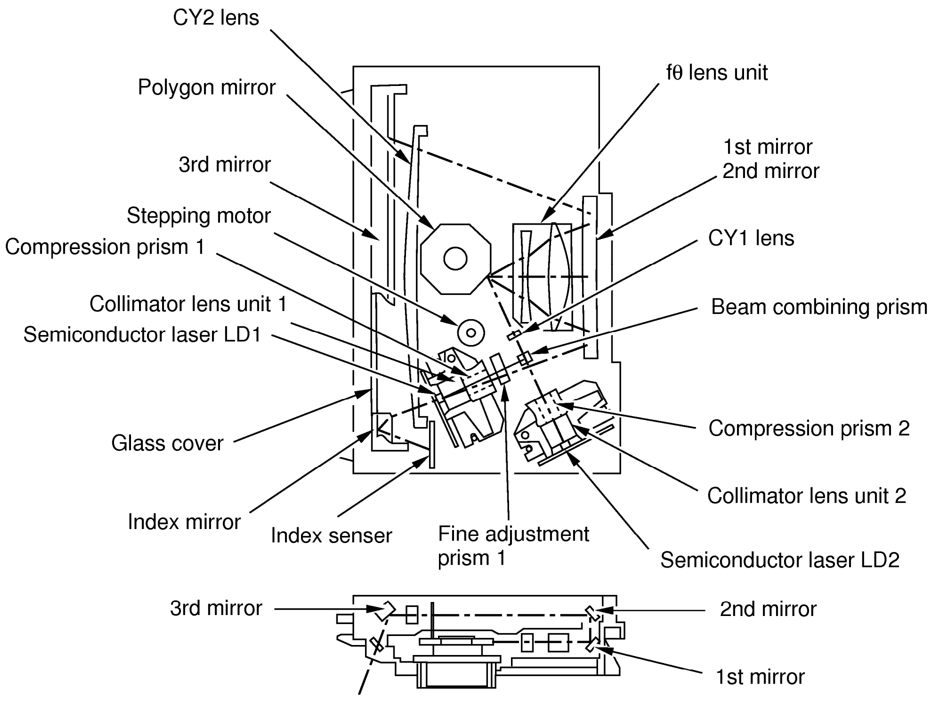

CY2 lens
Polygon mirror
3rd mirror
Stepping motor
Compression prism 1
Collimator lens unit 1
Semiconductor laser LD1
Glass cover
Index mirror
Index senser
Fine adjustment prism 1
fθ lens unit
1st mirror
2nd mirror
CY1 lens
Beam combining prism
Compression prism 2
Collimator lens unit 2
Semiconductor laser LD2
3rd mirror
2nd mirror
1st mirror

Fig.14

[1] Outline

Figure 14 shows the layout of the various parts of the write unit. The processed image data is output by semiconductor lasers. The light output from these lasers is sent via the path shown in Fig.15 to the OPC drum.

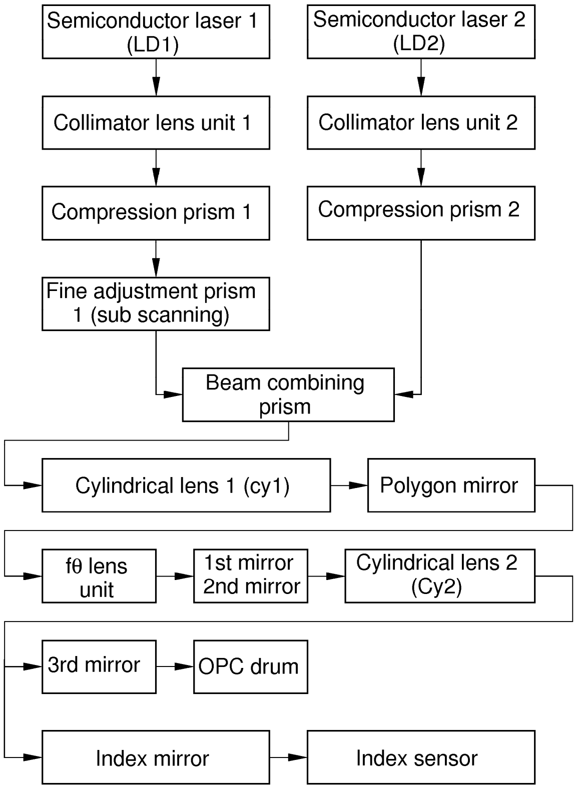

Semiconductor laser 1 (LD1)
Semiconductor laser 2 (LD2)
Collimator lens unit 1
Collimator lens unit 2
Compression prism 1
Compression prism 2
Fine adjustment prism 1 (sub scanning)
Beam combining prism
Cylindrical lens 1 (cy1)
Polygon mirror
fθ lens unit
1st mirror 2nd mirror
Cylindrical lens 2 (Cy2)
3rd mirror
OPC drum
Index mirror
Index sensor

Fig.15

[2] Collimator lens

Figure 16 shows the function of the collimator lens. This lens is used to form the light which diverges from a point source into a parallel beam.

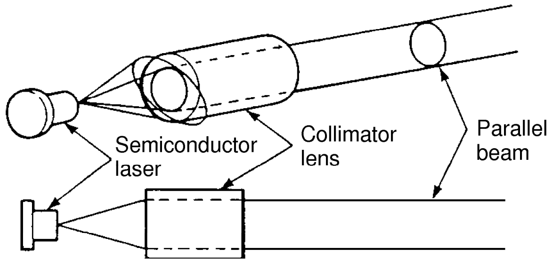

Semiconductor laser
Collimator lens
Parallel beam

Fig.16

[3] Beam combining prism

This prism causes the beams from the two semiconductor lasers mounted at right angles to each other to be output in the same direction.

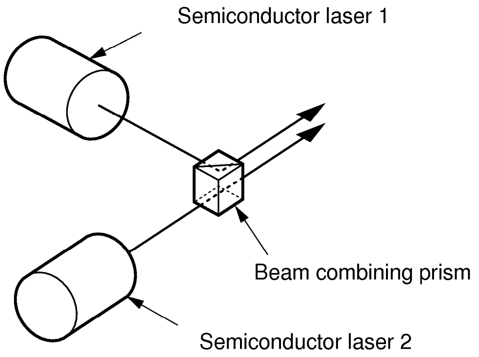

Semiconductor laser 1
Beam combining prism
Semiconductor laser 2

Fig.17

[4] Compression Prism

This prism shapes the beam radiated from each semiconductor laser, and adjusts the height in the up-down direction.

[5] Fine Adjustment Prism

This prism performs fine adjustment of the beam radiated from each semiconductor laser in the left-right and up-down directions.

[6] Polygon mirror

This is a multi-sided mirror which converts the laser beam into a scanning beam. An octagonal mirror is used in this machine. Figure 18 shows the appearance of the polygon mirror.

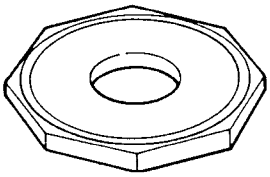


Fig.18

[7] fθ lens

The polygon mirror rotates at a constant angular speed. Consequently, if a general image forming lens were to be used, the speed at which the laser beam scans the surface of the drum would vary at the center and at the both edges of the drum, as shown in Fig.19.

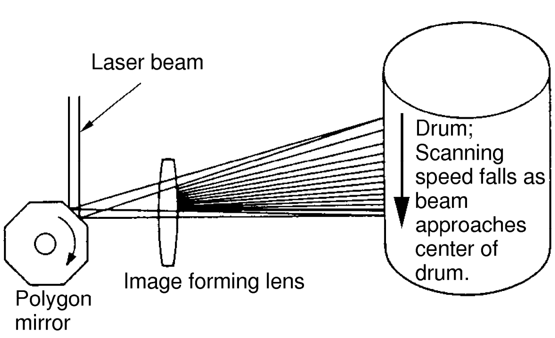

Laser beam
Drum; Scanning speed falls as beam approaches center of drum.
Polygon mirror
Image forming lens

Fig.19

An fθ lens is used to maintain the scanning speed constant over the entire length of the drum.

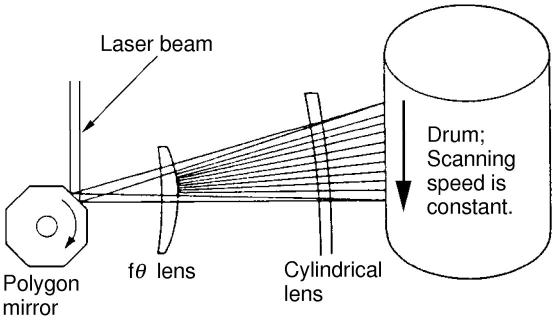

Laser beam
Drum; Scanning speed is constant.
Polygon mirror
fθ lens
Cylindrical lens

Fig.20

[8] Cylindrical Lenses

Two lenses, cylindrical lens 1 (Cy1) and cylindrical lens 2 (Cy2), are used to eliminate the tilt error of the polygon mirror. Cylindrical lenses 1 and 2 are installed before and after the polygon mirror, as shown in Fig.21. The laser beam is focused on the polygon mirror by means of cylindrical lens 1, and the light reflected off the polygon mirror is once again focused on the drum by means of cylindrical lens 2.
The optical relationship between the polygon mirror and the drum face with respect to cylindrical lens 2 is that of image and object. Consequently, even if the polygon mirror is tilted, the light path is corrected by cylindrical lens 2, ensuring that the beam is scanned along the same line.

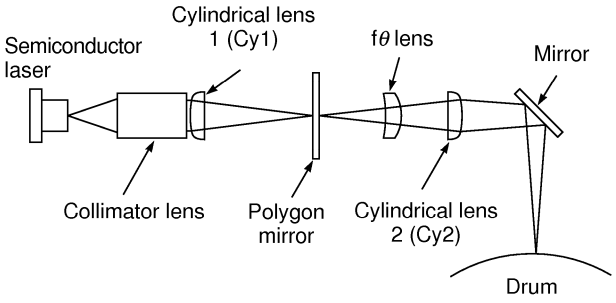

Semiconductor laser
Cylindrical lens 1 (Cy1)
fθ lens
Mirror
Collimator lens
Polygon mirror
Cylindrical lens 2 (Cy2)
Drum

Fig.21

[9] Index Sensor

This sensor is intended to determine the leading edge write position for each scan in the axial direction of the drum, and also to determine the positions of the two beams.

IMAGE FORMATION

[1] Charging

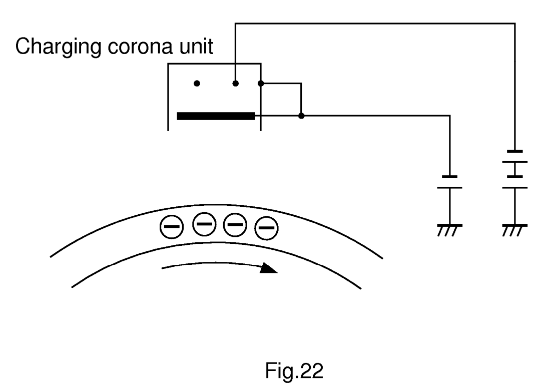


Fig.22

A negative charging method using a Scorotron is employed. A constant negative voltage is applied to the charging plate and back plate in order to maintain the potential of the drum constant.

[2] Exposure

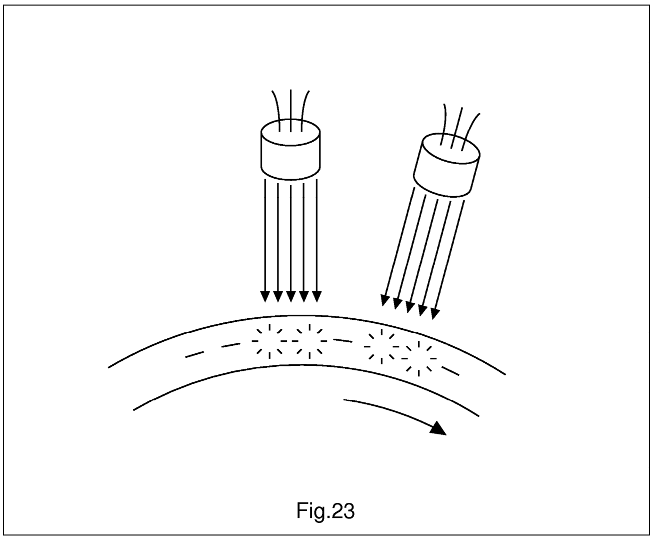


Fig.23

Exposure is performed by means of the laser beams, causing the charge on the drum to be erased. Two laser beams are used to write (exposure) two lines of image data at a time.

[3] Developing

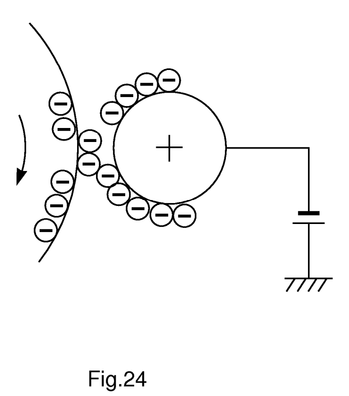


Fig.24

Negatively charged toner adheres to the parts of the surface of the drum where charge was erased during the exposure process.

[4] Transfer/Transfer Synchronization Exposure

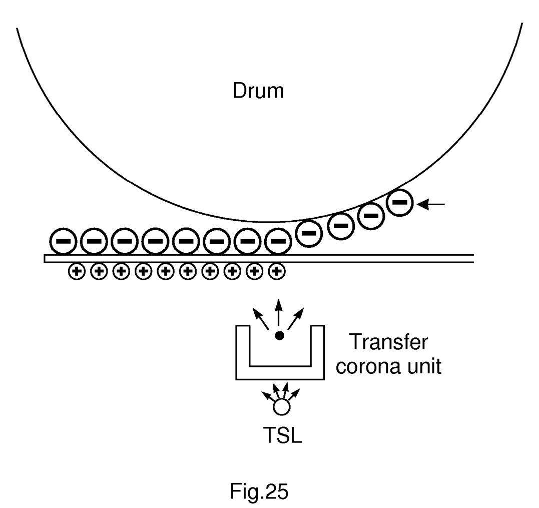


Fig.25

The transfer corona unit causes the toner on the drum to be transferred to the paper by means of a discharge from the back of the paper.
The TSL improves the transfer of the toner and the separation of the paper.

[5] Separation

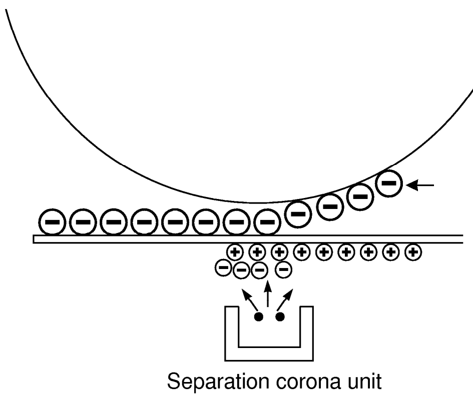

Separation corona unit

Fig.26

The separation corona unit erases the charge on the paper by applying an AC discharge from the back of the paper, thus enabling the paper to separate from the drum under its own weight.

[6] Cleaning

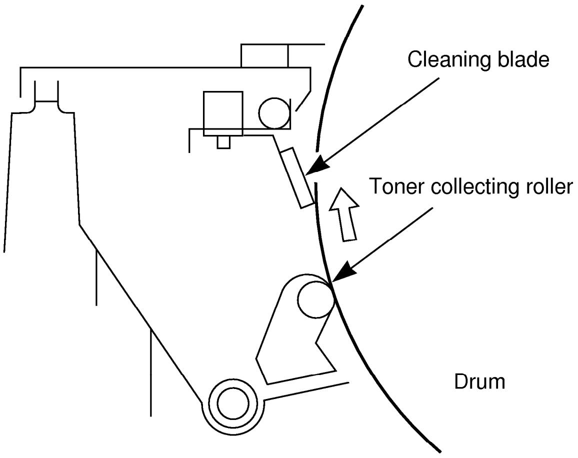

Cleaning blade
Toner collecting roller
Drum

Fig.27

Toner remaining on the drum is removed by the cleaning blade.

[7] PCL

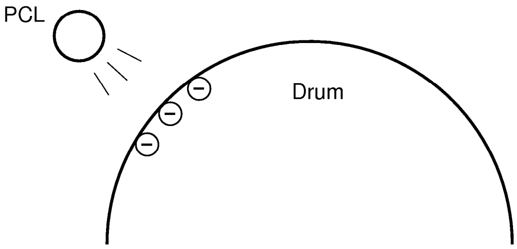


Fig.28

The PCL erases the potential remaining on the surface of the drum.

2

MAIN BODY

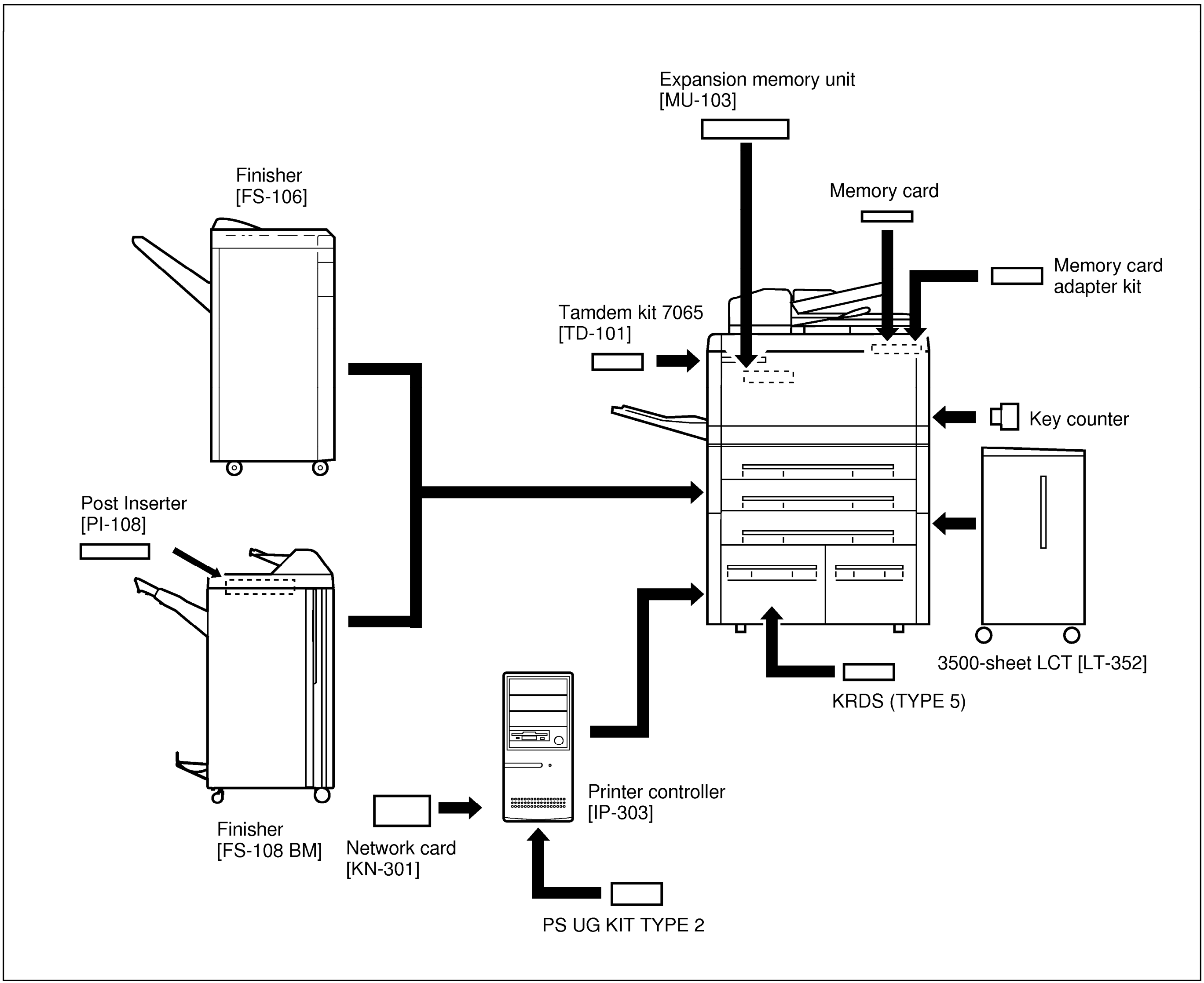
This section covers the structure, functions, operation and method of disassembling and assembling the machine.

Observe the following precautions when performing disassembly and assembly work.

1. Be sure to unplug the power cord before working on the machine.
2. Perform all reassembly work by reversing the order in which the component was disassembled, unless otherwise specified.
3. Do not lose small parts (screws, etc.) or insert them in the wrong place.
4. Install all parts completely before operating the machine.
5. Do not loosen the screws indicated as disallowed for removal.

OUTLINE OF THE SYSTEM

2


Expansion memory unit
[MU-103]
Finisher
[FS-106]
Memory card
Memory card
adapter kit
Tamdem kit 7065
[TD-101]
Key counter
Post Inserter
[PI-108]
3500-sheet LCT [LT-352]
KRDS (TYPE 5)
Printer controller
[IP-303]
Finisher
[FS-108 BM]
Network card
[KN-301]
PS UG KIT TYPE 2

7065 PRODUCT SPECIFICATIONS

1. Type

Type: Console type (floor-mounted type)
Copying method: Indirect electrostatic method
Original table method: Fixed
Photosensitive material: OPC
Sensitizing method: Laser writing method
Paper feed method: Two stacked trays (500 sheets, 80 g/m^2 x 2)
Multi by-pass tray (100 sheets, 80 g/m^2)
LCT (1000/1500 sheets, 80 g/m^2)
LCT (3500 sheets, 80 g/m^2) *1
*1: Optional

2. Functions

Originals: Sheets, books, solid objects
Original size: Max. A3
Copy size: A3 to A5R
F4/8 x 13
Magnification
Fixed magnifications: x1.00, x1.41, x1.22, x1.15, x0.86, x0.82, x0.71
Special ratio magnifications: 3 modes
Zoom magnification: x0.33 to 4.00 (1% steps)
Vertical magnification: x0.33 to 4.00 (1% steps)
Horizontal magnification: x0.33 to 4.00 (1% steps)
Warm-up time: Less than 6.5 minutes*1
(20°C, rated voltage)

First copy time (seconds)

Size	A4
Manual	3.9
EE	3.9
APS	3.9

Continuous copy speed (life size, copies/minute)

Size	A4
A4	65

Number of continuous copies: 1 to 9999
Copy density selection: AE, manual
Arbitrarily set density (2 modes)
Special functions: Sheet/Cover Interleave, Chapter, Combination (2-in-1, 4-in-1, 8-in-1, overlay), Booklet, Transparency Interleave, Image Insert, Book Copy, Different Series Mixed Original, Text/Photo Enhance (text/photo/pencil), Reverse Image, Repeat, Frame/Fold Erasure, AUTO Layout, Thin/Thick Paper, Shift/Reduction Shift, Non-image Area Erase, memory function, density monitor, single step, density shift, printing function, copy reservation, image rotation, weekly timer, job memory

3. Copy Paper

Plain paper High quality paper (60 g/m^2 to 90 g/m^2)
Special paper (By-pass feed only)
* Label paper
* OHP film
* Blueprint master paper
* Recycled paper
* High quality paper (50 g/m^2 to 59 g/m^2, 91 g/m^2 to 170 g/m^2)

4. Options

△2 **Finisher:** FS-106, FS-108BM
3500-sheets LCT: LT-352
Expansion memory unit: MU-103
△2 **Post Inserter**: PI-108
Memory card
Memory card adapter kit
△2 **Tamdem Kit 7065**: TD-101
Key counter
Printer controller: IP-303
Network card: KN-301
△2 **PS UG KIT TYPE 2**
KRDS: KRDS TYPE 5

5. Particulars of Machine

Power source: 230 VAC -14% to +10.6%, 50 Hz/60 Hz
120 VAC ±10%, 60 Hz
Power consumption: Max 2,300 W (when all options are connected)
Weight: Approx. 231 kg

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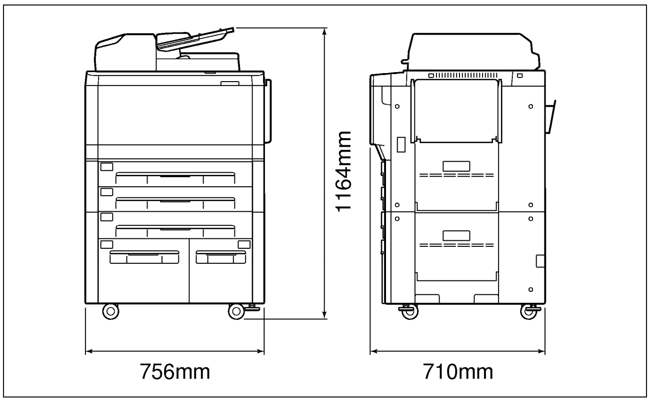
*1: 6.5 minutes is the machine for the 230 VAC specification.
Warm-up time differs depend on the power source (voltage).

Machine dimensions



6. Maintenance

Maintenance interval: Every 150,000 copies
Machine service life: 5,000,000 copies or 5 years

7. Copy Materials

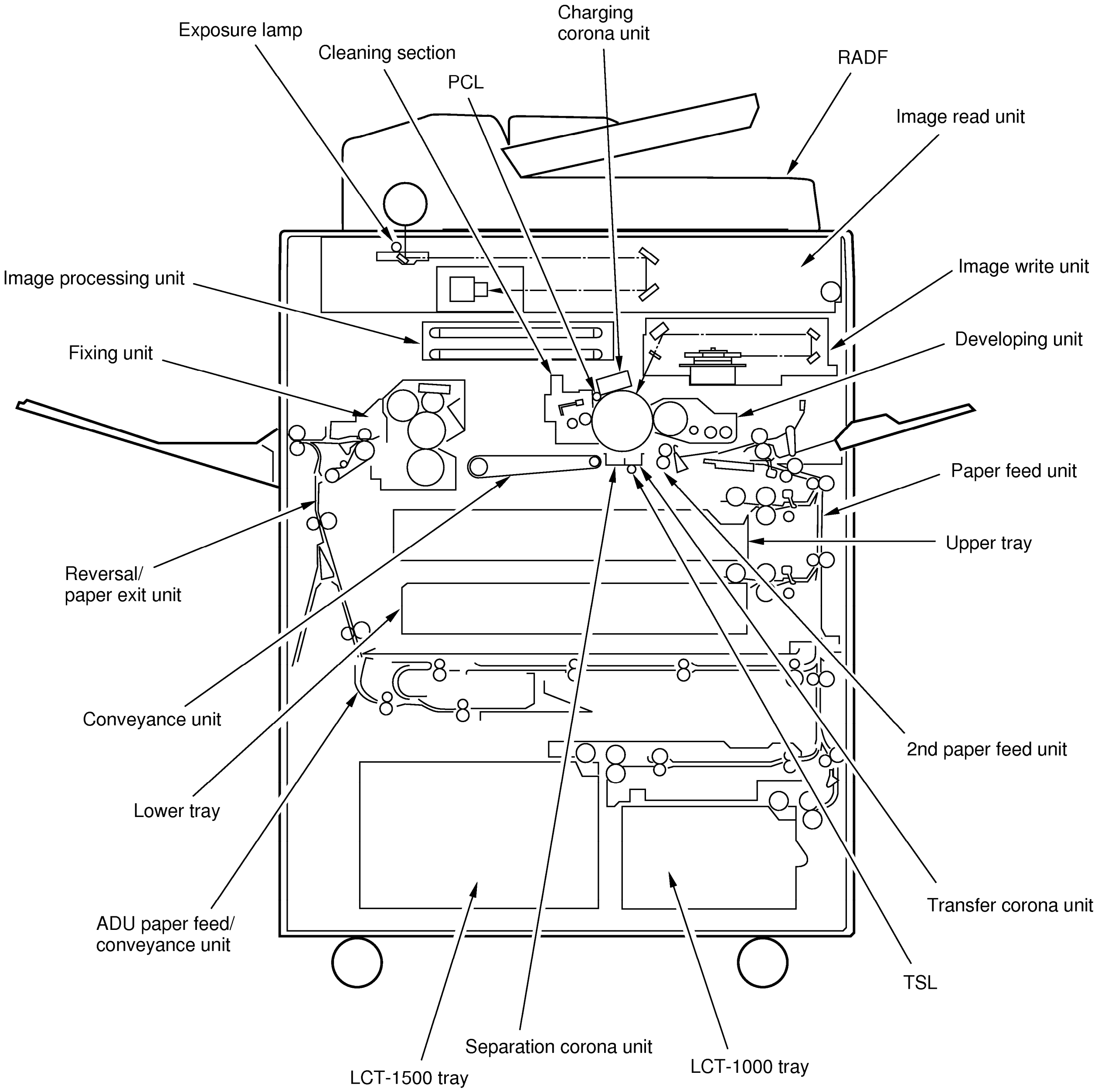
Developer:	Common with 7060
Toner:	Exclusively for 7065
Drum:	OPC drum (ϕ 80) Common with 7060

8. Machine Operating Environment

Temperature: 10 to 30°C
Humidity: 10 to 80%RH

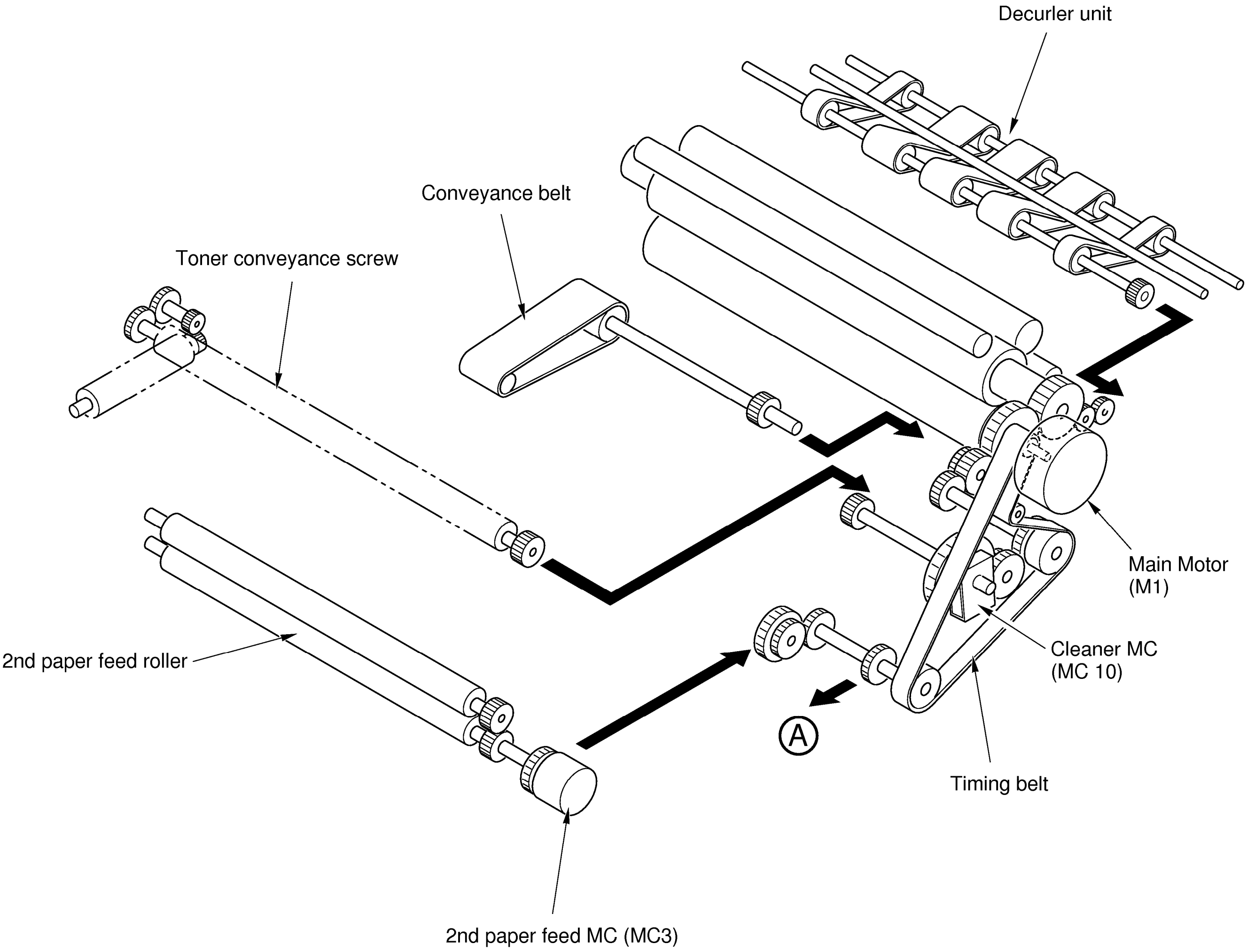
These specifications are subject to change without notice.

CENTER CROSS-SECTION

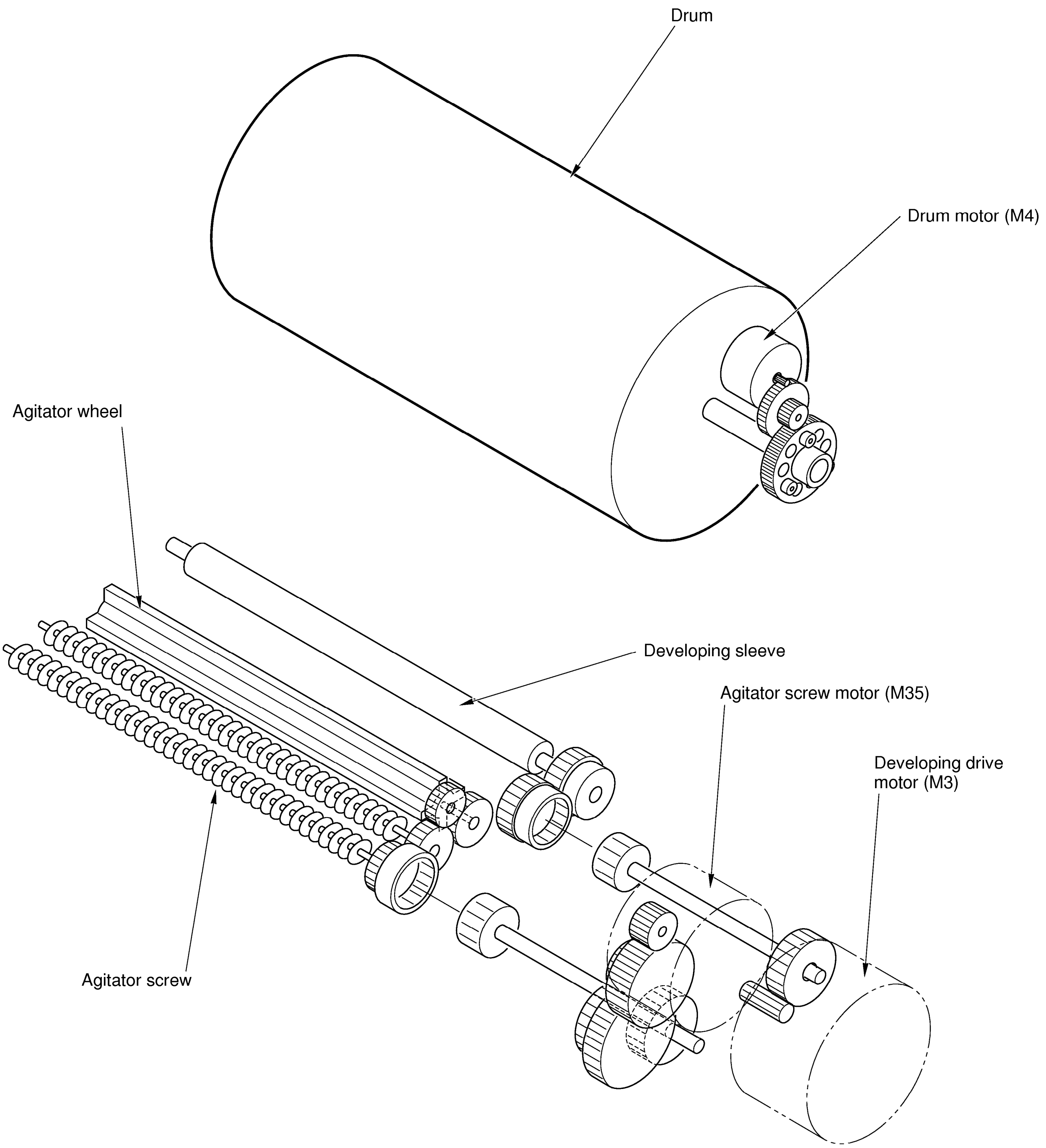

Exposure lamp
Cleaning section
Charging corona unit
PCL
RADF
Image read unit
Image processing unit
Image write unit
Fixing unit
Developing unit
Paper feed unit
Upper tray
Reversal/ paper exit unit
Conveyance unit
2nd paper feed unit
Lower tray
ADU paper feed/ conveyance unit
Transfer corona unit
TSL
Separation corona unit
LCT-1500 tray
LCT-1000 tray

DRIVE SYSTEM DIAGRAM

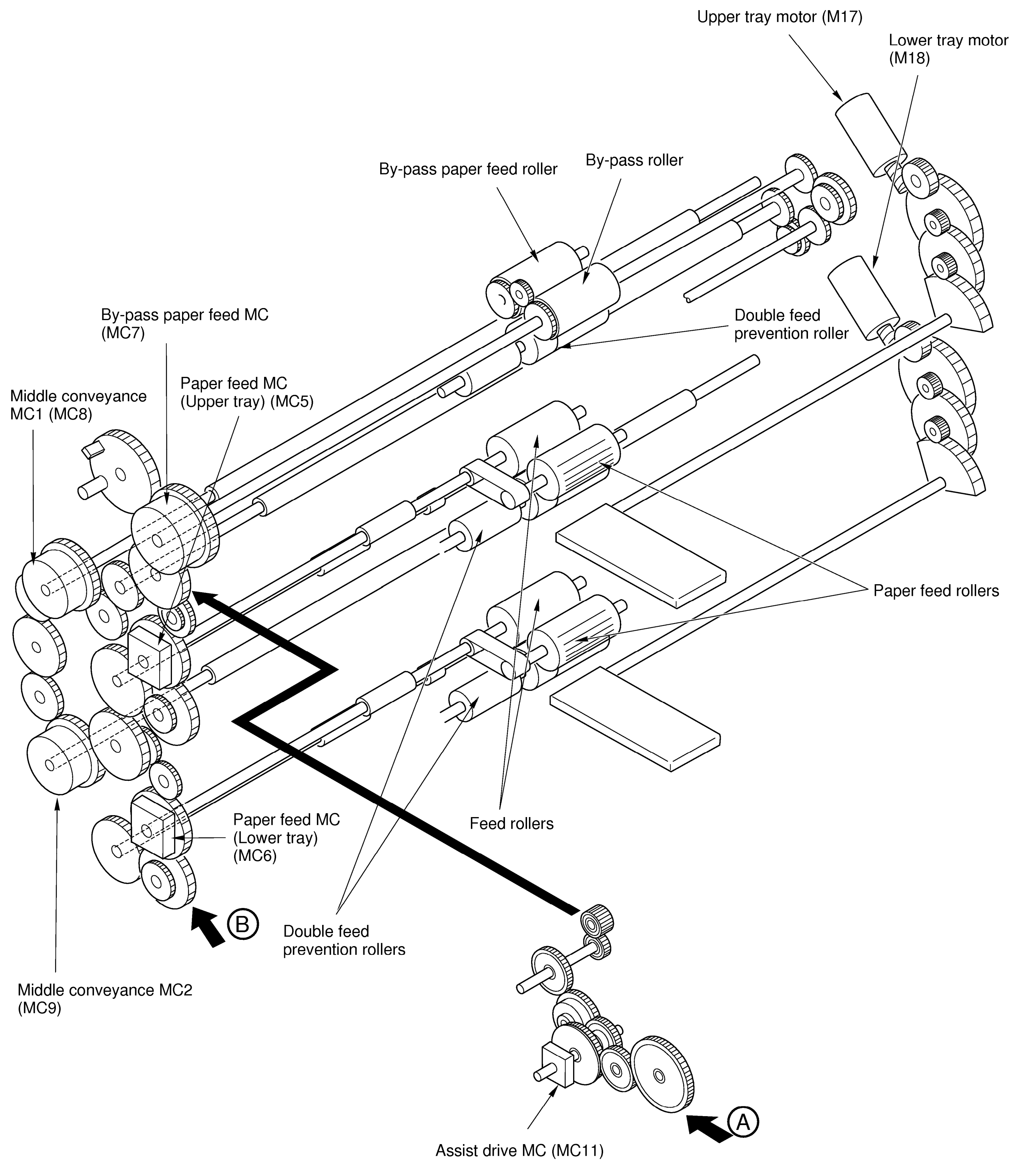
[1] Main Drive


Decurler unit
Conveyance belt
Toner conveyance screw
Main Motor
(M1)
Cleaner MC
(MC 10)
2nd paper feed roller
Ⓐ
Timing belt
2nd paper feed MC (MC3)

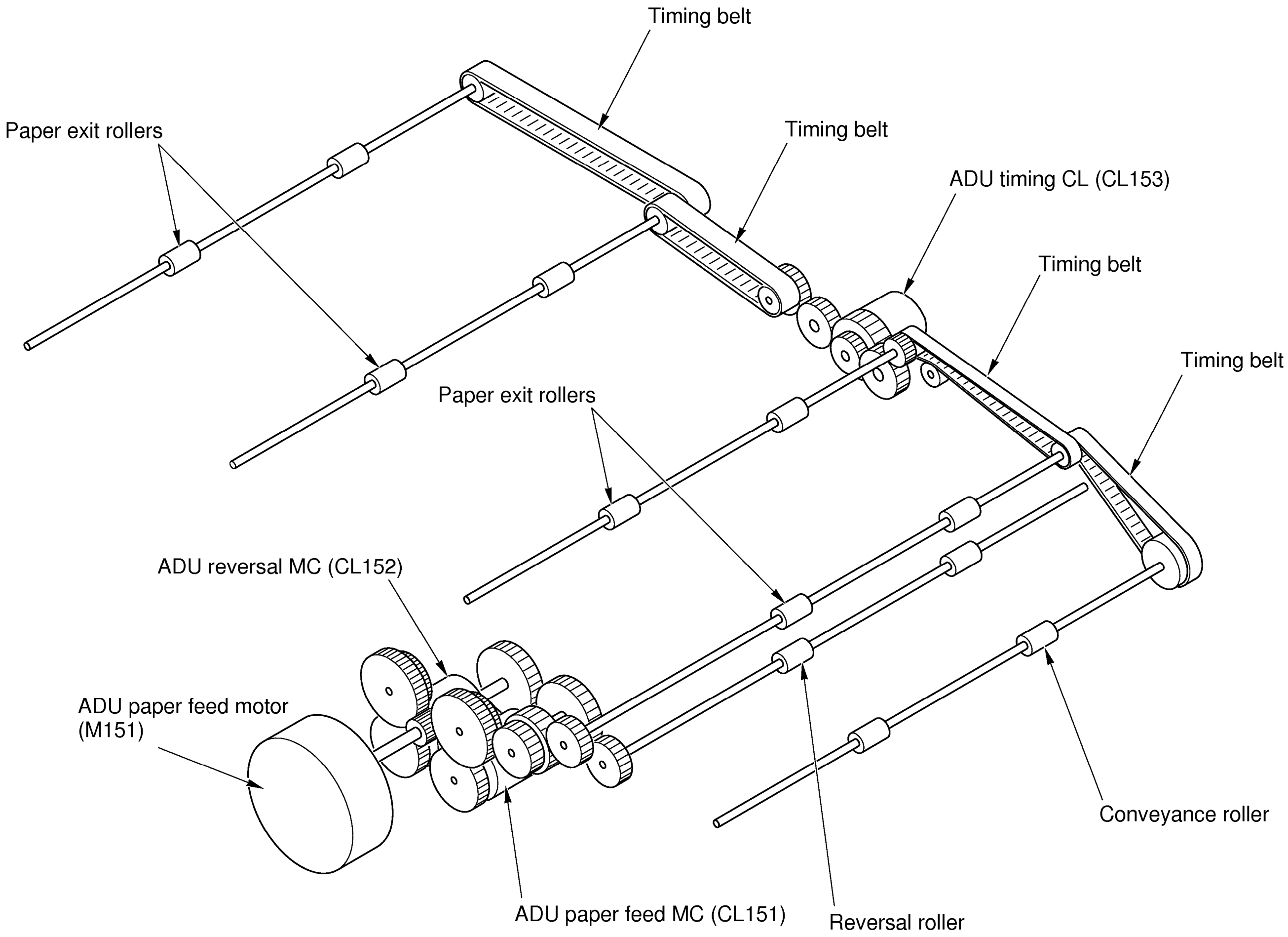
[2] Drum/Developing Drive


Drum
Drum motor (M4)
Agitator wheel
Developing sleeve
Agitator screw motor (M35)
Developing drive motor (M3)
Agitator screw

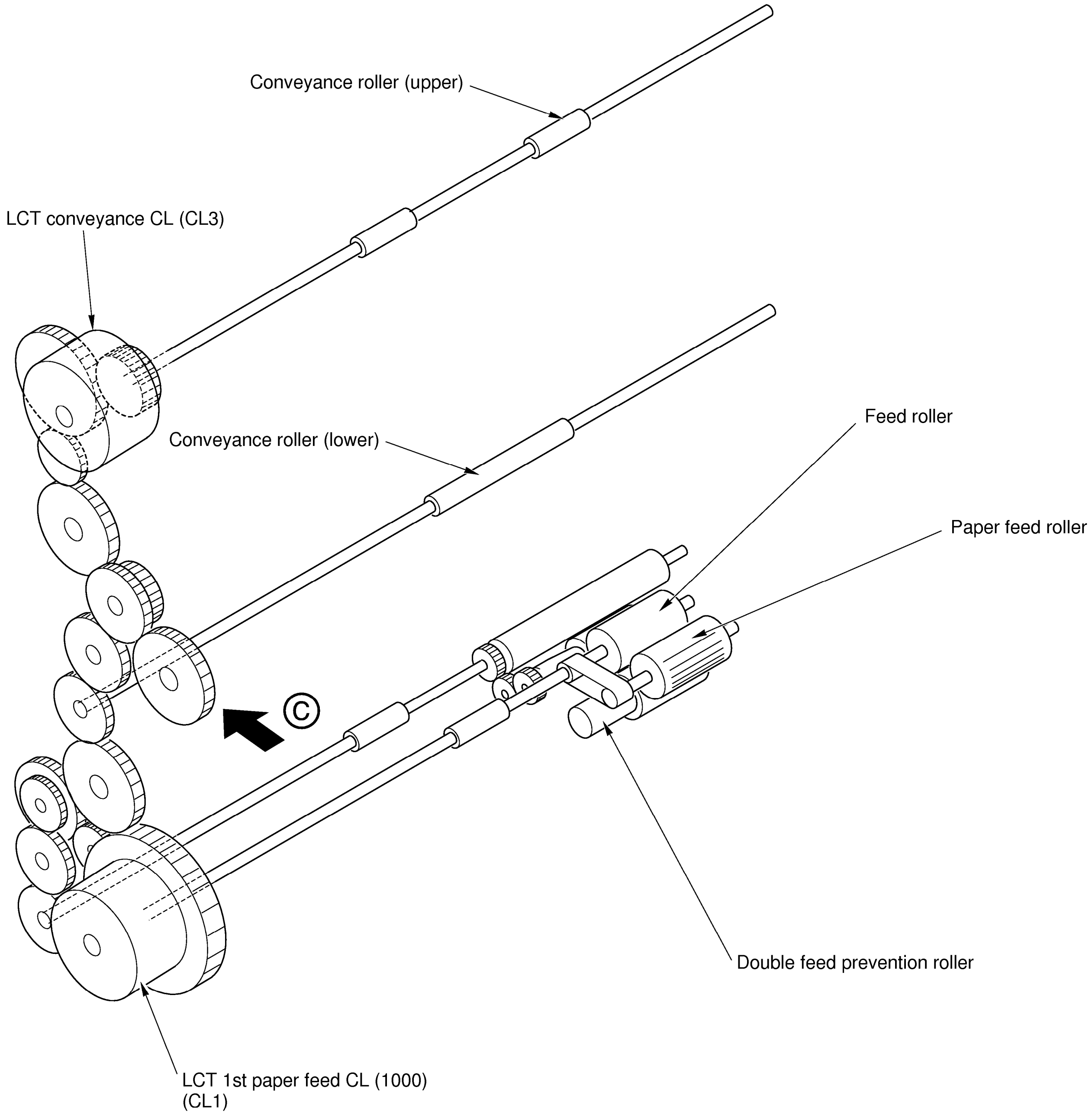
[3] Paper Feed Drive


Upper tray motor (M17)
Lower tray motor (M18)
By-pass paper feed roller
By-pass roller
By-pass paper feed MC (MC7)
Double feed prevention roller
Middle conveyance MC1 (MC8)
Paper feed MC (Upper tray) (MC5)
Paper feed rollers
Paper feed MC (Lower tray) (MC6)
Feed rollers
B
Double feed prevention rollers
Middle conveyance MC2 (MC9)
A
Assist drive MC (MC11)

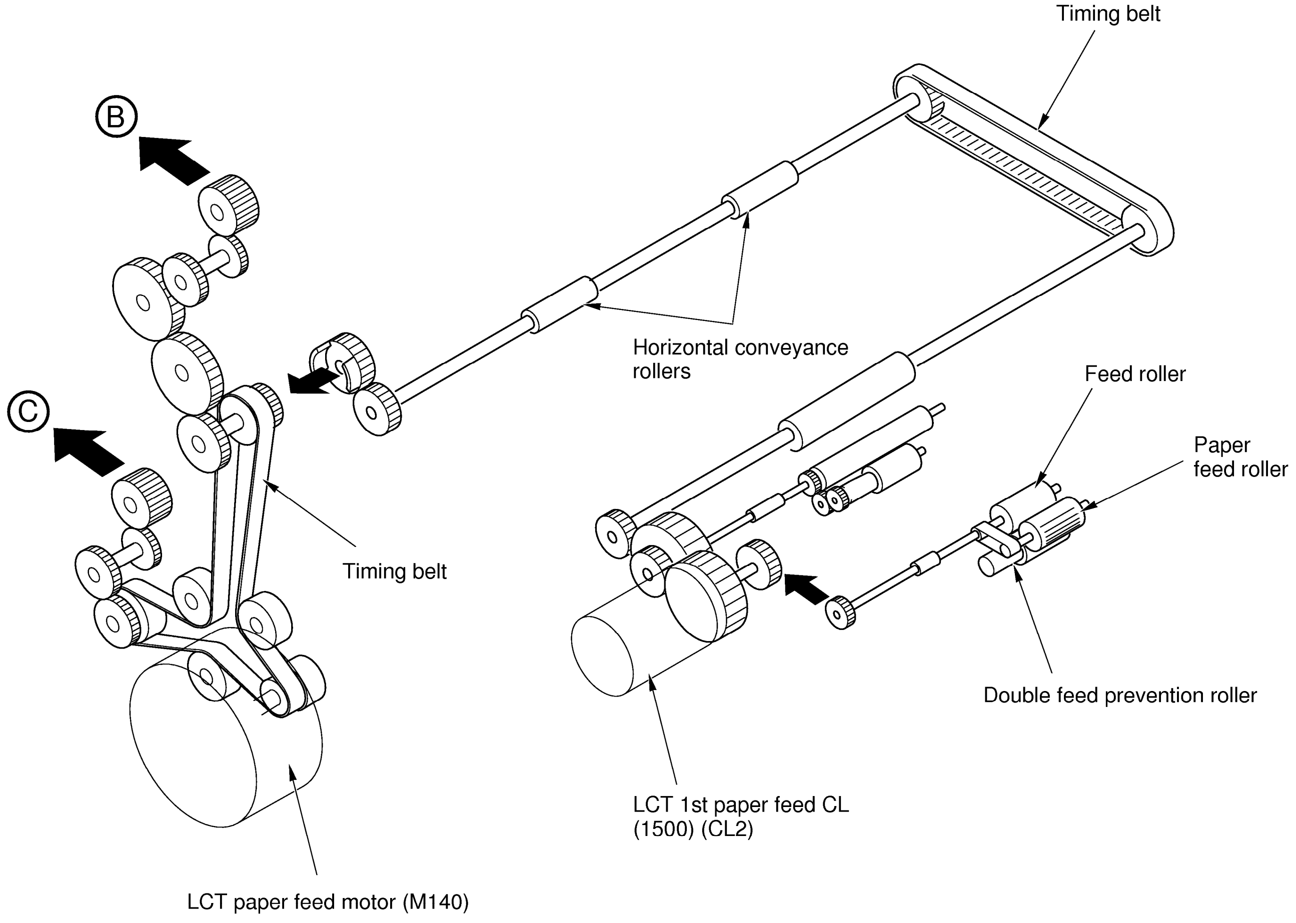
[4] ADU Paper Feed/Conveyance Drive


Timing belt
Paper exit rollers
Timing belt
ADU timing CL (CL153)
Timing belt
Timing belt
Paper exit rollers
ADU reversal MC (CL152)
ADU paper feed motor
(M151)
Conveyance roller
ADU paper feed MC (CL151)
Reversal roller

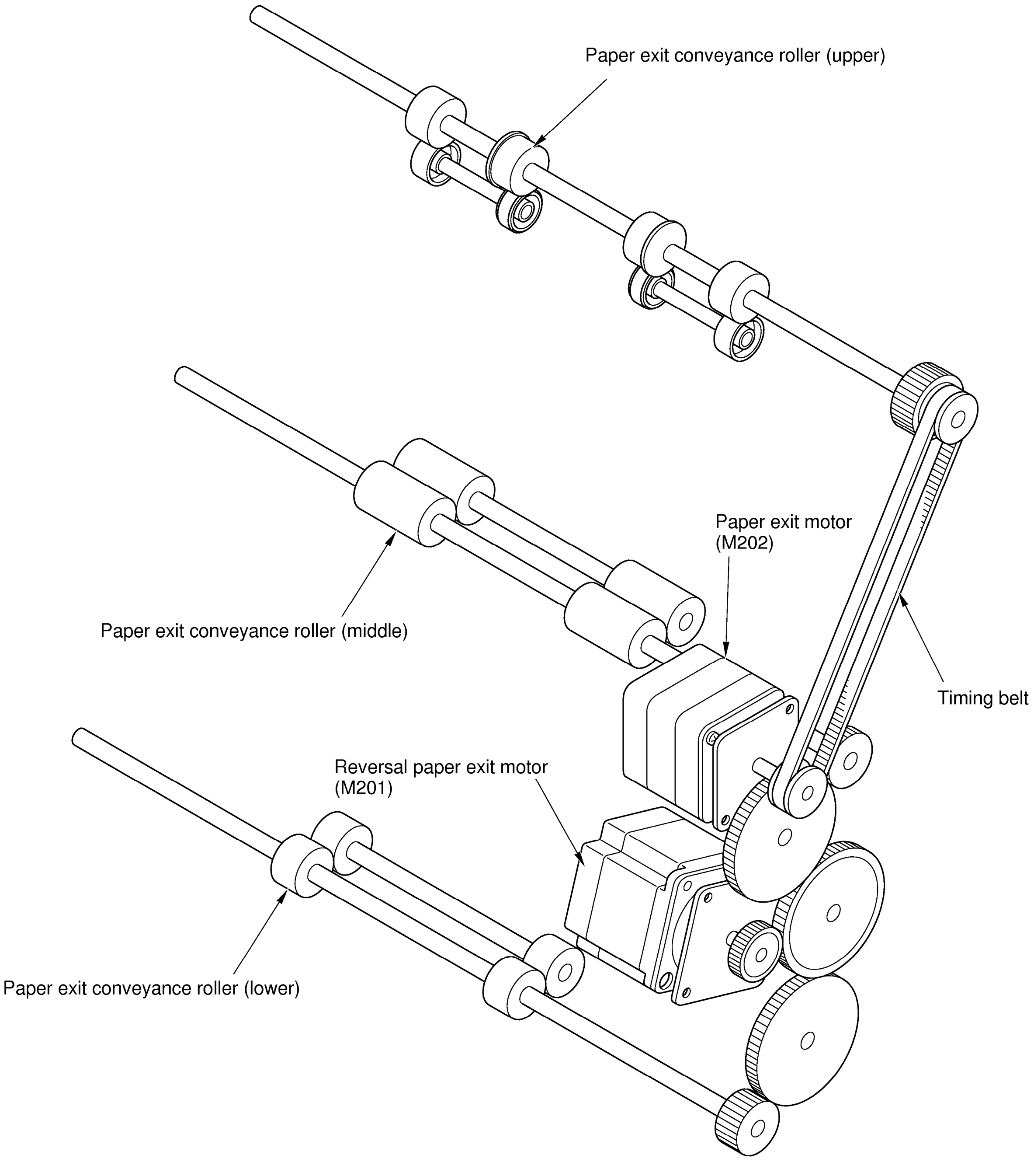
## [5] 1000-Tray Paper Feed/Conveyance Unit


Conveyance roller (upper)
LCT conveyance CL (CL3)
Feed roller
Conveyance roller (lower)
Paper feed roller
©
Double feed prevention roller
LCT 1st paper feed CL (1000)
(CL1)

## [6] 1500-Tray Paper Feed/Conveyance Unit

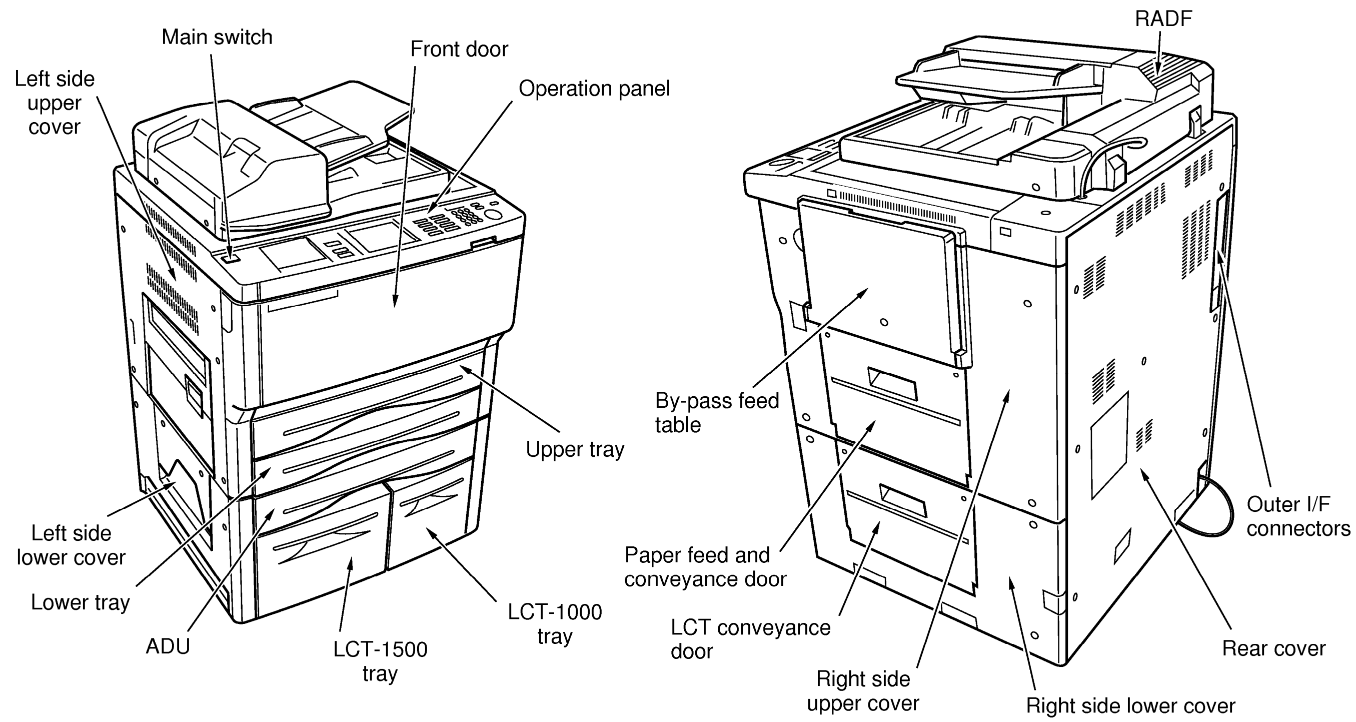

Timing belt
B
Horizontal conveyance rollers
Feed roller
C
Paper feed roller
Timing belt
Double feed prevention roller
LCT 1st paper feed CL (1500) (CL2)
LCT paper feed motor (M140)

[7] Reversal/Paper Exit Unit


Paper exit conveyance roller (upper)
Paper exit motor
(M202)
Paper exit conveyance roller (middle)
Timing belt
Reversal paper exit motor
(M201)
Paper exit conveyance roller (lower)

EXTERNAL SECTION

[1] Composition


Main switch
Front door
Left side upper cover
Operation panel
Upper tray
Left side lower cover
Lower tray
ADU
LCT-1500 tray
LCT-1000 tray
RADF
By-pass feed table
Paper feed and conveyance door
LCT conveyance door
Right side upper cover
Right side lower cover
Outer I/F connectors
Rear cover

[2] Disassembly and Re-assembly

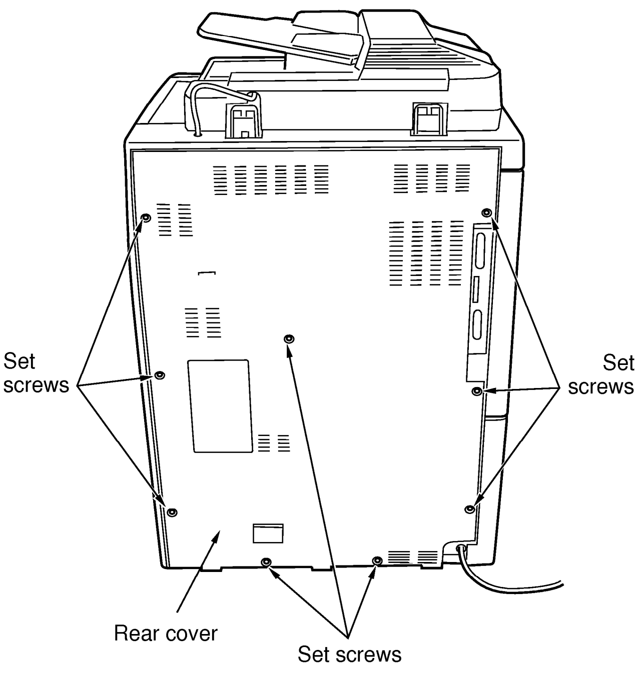
1. Replacing the Ozone Filter (K)

⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

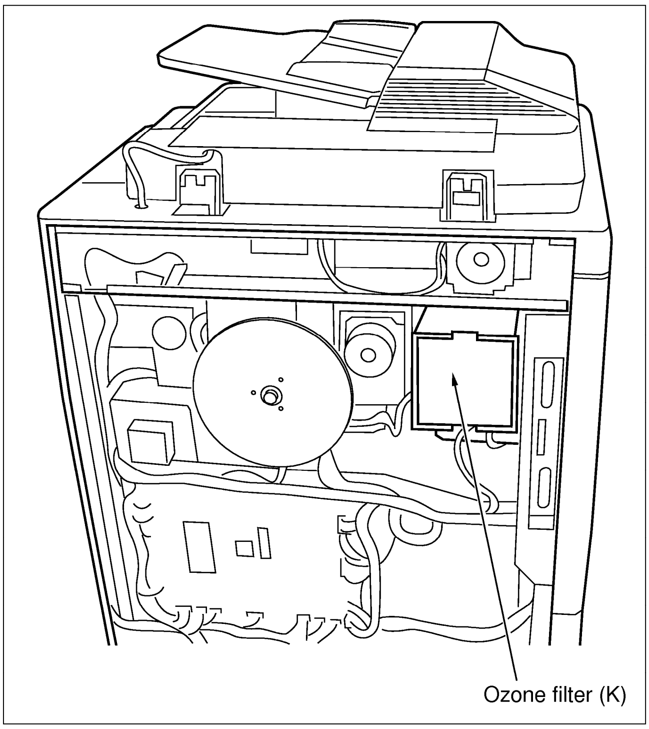
Caution: When replacing the ozone filter (K), ensure the new filter is fitted securely inside the main body.

a. Procedure

(1) Remove the nine set screws, then remove the rear cover.


Set screws
Set screws
Rear cover
Set screws

(2) Pull the ozone filter (K) forward and remove it.


Ozone filter (K)

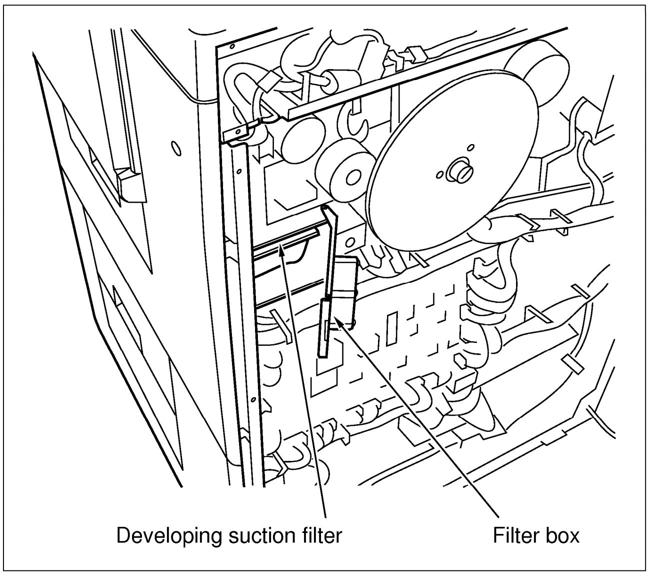
(3) Re-install the ozone filter in the opposite sequence to removal.

2. Replacing the Developing Suction Filter

a. Procedure

(1) Remove the rear cover.

(2) Release the lock, open the filter box, and remove the developing suction filter.


Developing suction filter
Filter box

(3) Re-install the suction filter in the opposite sequence to removal.

3. Replacing the Dust Proof Filter Assembly

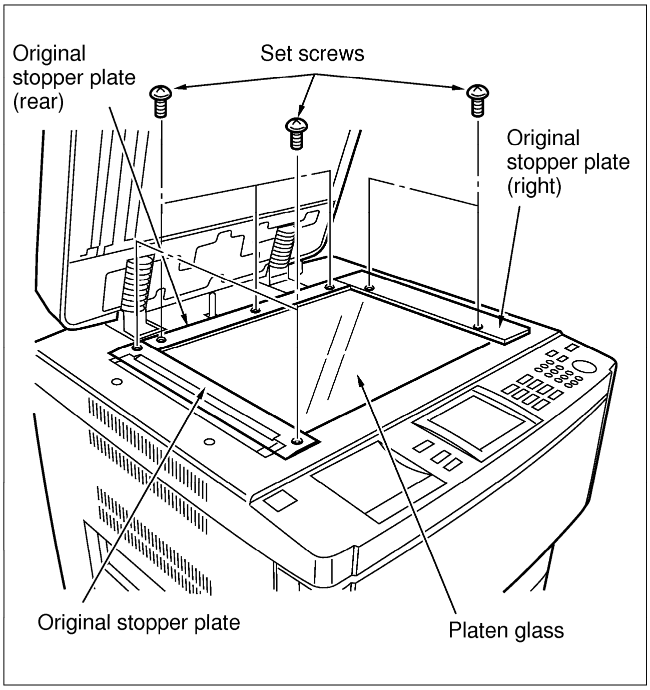
Caution: Be sure to install the dust proof filter so that the filter material is on the finisher side of the assembly.

a. Procedure

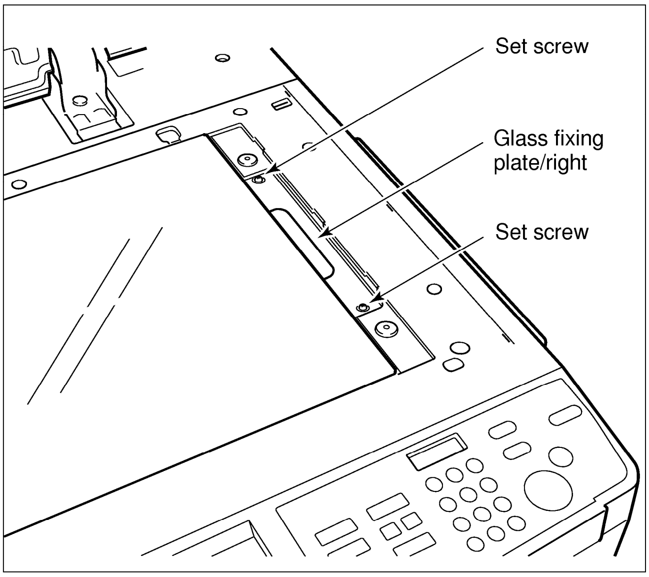
(1) Open the RADF.

(2) Remove the two set screws, then remove the original stopper plate (rear/right).

(3) Remove the five set screws, then remove the original stopper plate (rear/right).

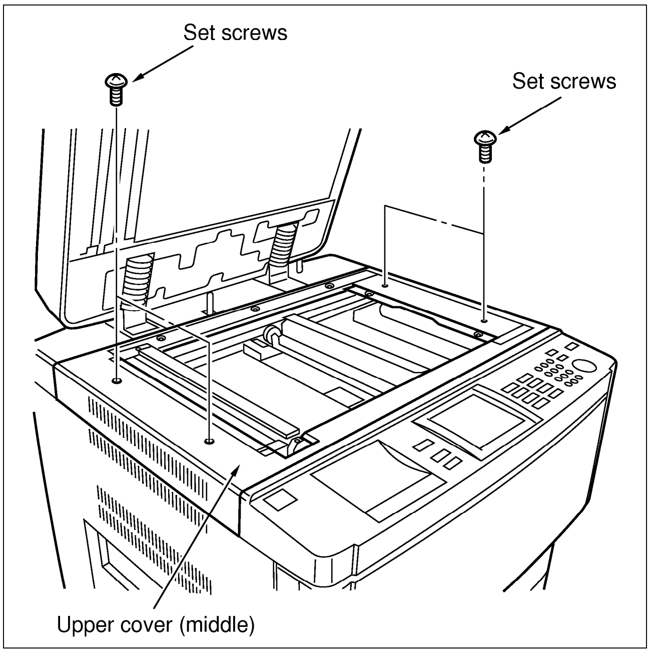

Original stopper plate (rear)
Set screws
Original stopper plate (right)
Original stopper plate
Platen glass

(4) Loosen the two set screws, and remove the glass fixing plate/right.

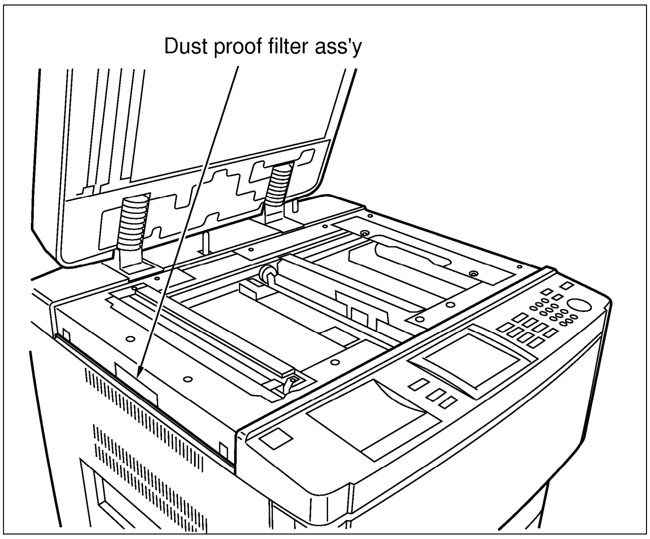

Set screw
Glass fixing plate/right
Set screw

(5) Remove the platen glass.

(6) Remove the four set screws to open the bypass table, and remove the upper cover (middle).


Set screws
Set screws
Upper cover (middle)

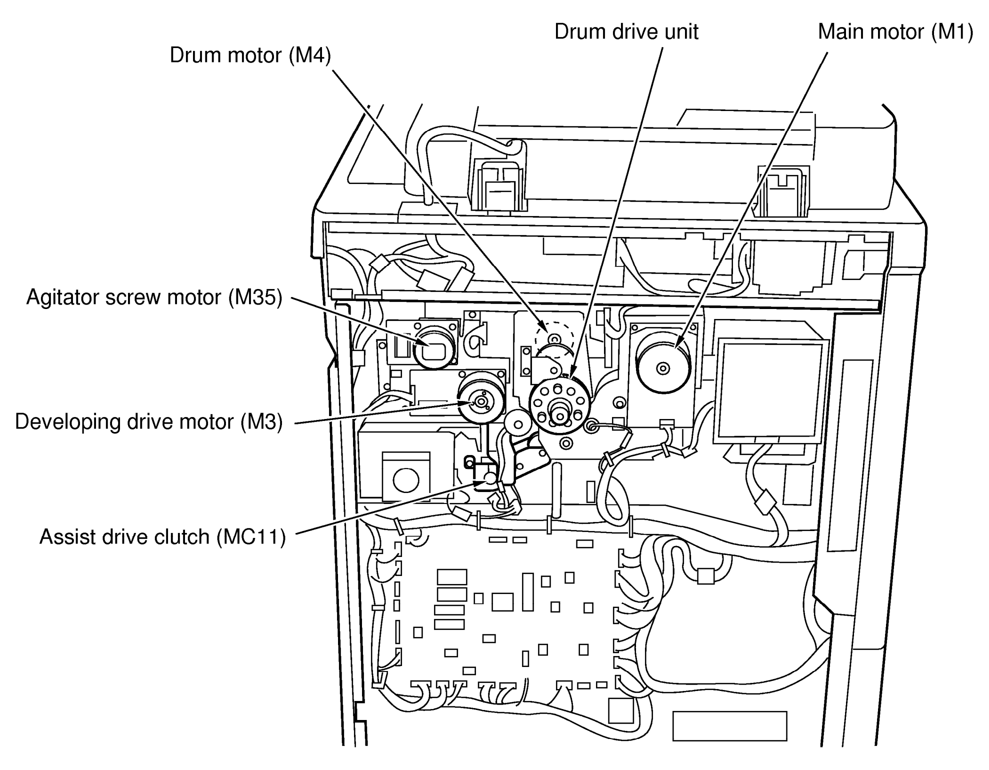
(7) Remove the dust proof filter ass'y, then install the new dust proof filter ass'y.


Dust proof filter ass'y

(8) Re-install the removed parts in the reverse sequence to removal.

DRIVE SECTION

[1] Composition


Drum drive unit
Main motor (M1)
Drum motor (M4)
Agitator screw motor (M35)
Developing drive motor (M3)
Assist drive clutch (MC11)

[2] Mechanisms

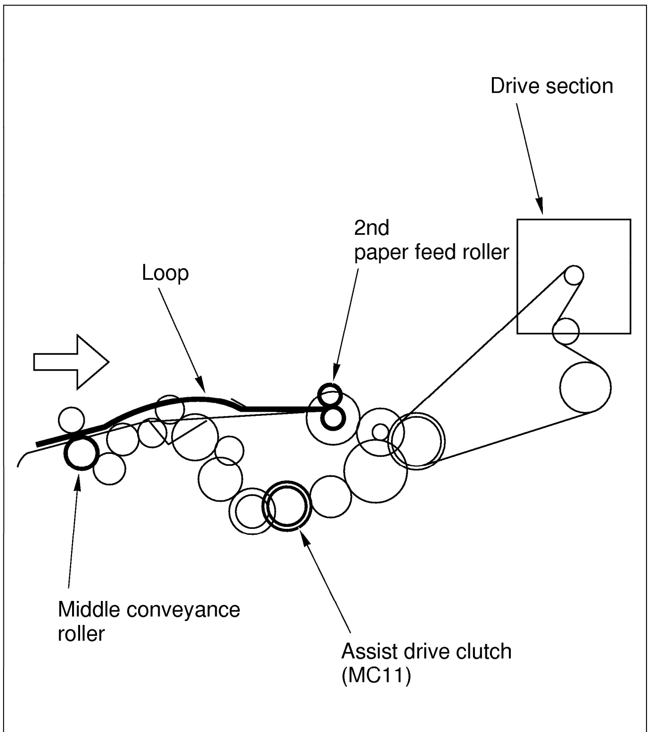
	Mechanism	Method
*1	Drum drive	Gear drive (dedicated motor)
*1	Developing sleeve drive	Gear drive (dedicated motor)
*1	Developing agitator drive	Gear drive (dedicated motor)
	2nd paper feed drive	Timing belt + gear drive
	Conveyance drive	Timing belt + gear drive
	Fixing and paper exit drive	Timing belt + gear drive
	ADU lead-in drive	Timing belt + gear drive
	Toner recycle	Timing belt + gear drive
*2	Loop assist drive	Clutch + gear drive

***1: Separation of the different parts of the drive system**

The drum, developing sleeve and developing agitator of this machine are driven by separate motors in order to improve the serviceability of the drum unit and also to improve the developing performance.

***2: Loop assist drive**

Drive which is supplied to the 2nd paper feed roller is also transmitted to the middle conveyance roller in order to stabilize the loop formation before the 2nd paper feed roller. This drive is transmitted from the drive section via the assist drive clutch (MC11) during loop formation.


Drive section
2nd paper feed roller
Loop
Middle conveyance roller
Assist drive clutch (MC11)

[3] Disassembly and Re-assembly

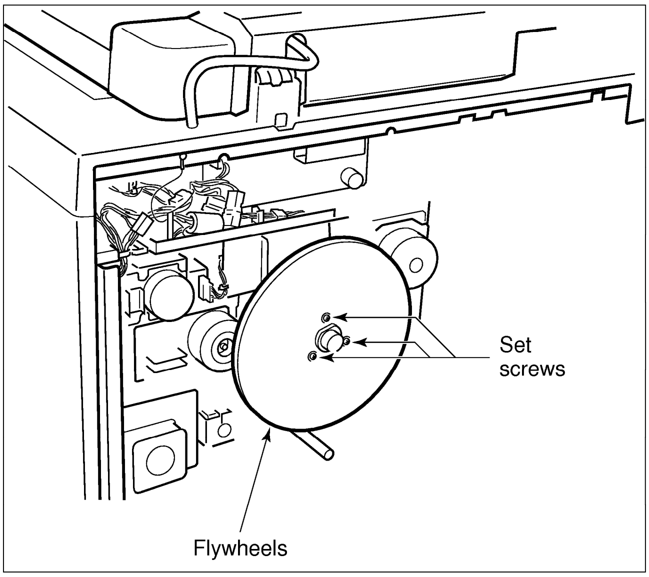
1. Removing and Re-installing the Main Motor Unit

⚠Caution: Be sure that the power cord has been unplugged from the power outlet.

Caution: Be sure to remove the drum unit before removing or re-installing the main motor unit.
If you leave the drum unit installed, the cleaning blade is likely to be damaged because the drum will turn when you remove or re-install the flywheel.

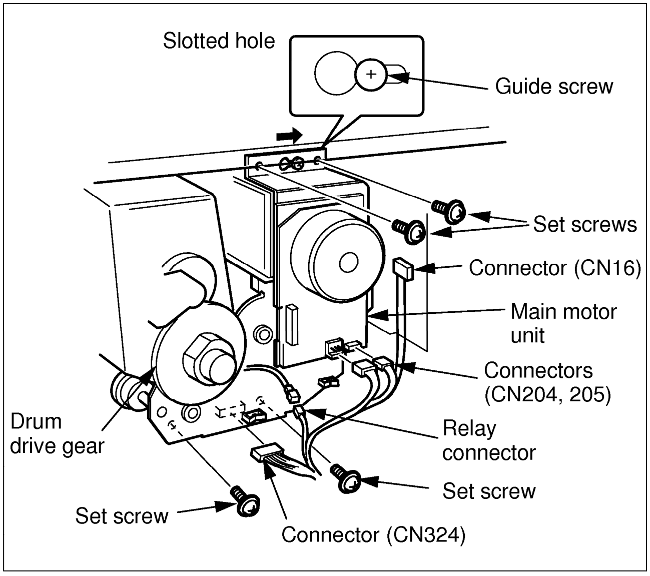
a. Procedure

(1) Remove the drum unit from the main body. (Refer to "Drum unit section".)
(2) Remove the nine set screws, then remove the rear cover.
(3) Remove the three set screws, then remove the flywheels (three).


Set screws
Flywheels

(4) Disconnect the relay connector and the four connectors (CN16, 204, 205 and 324), then remove the cable from the wiring clamp.
(5) Remove the four set screws, slide the main motor unit to the right, then pull it forward and remove it.

Caution: DO NOT strike the main motor unit against the drum drive gear when removing or re-installing it.

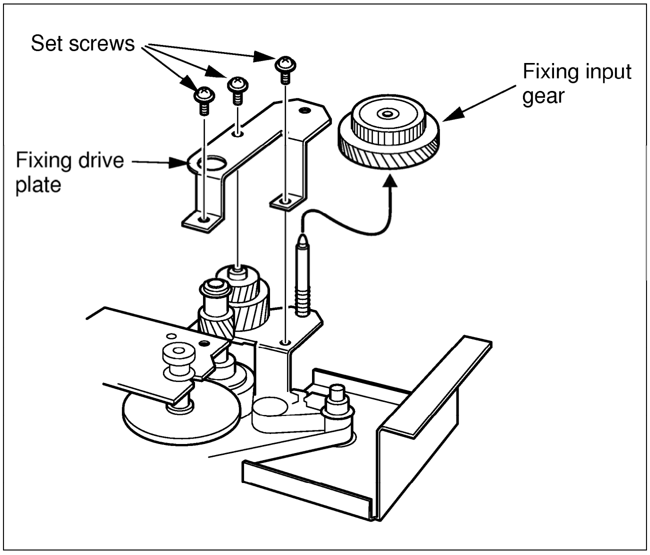

Slotted hole
Guide screw
Set screws
Connector (CN16)
Main motor unit
Connectors (CN204, 205)
Drum drive gear
Relay connector
Set screw
Set screw
Connector (CN324)

(6) Re-install the main motor unit in the opposite sequence to removal.

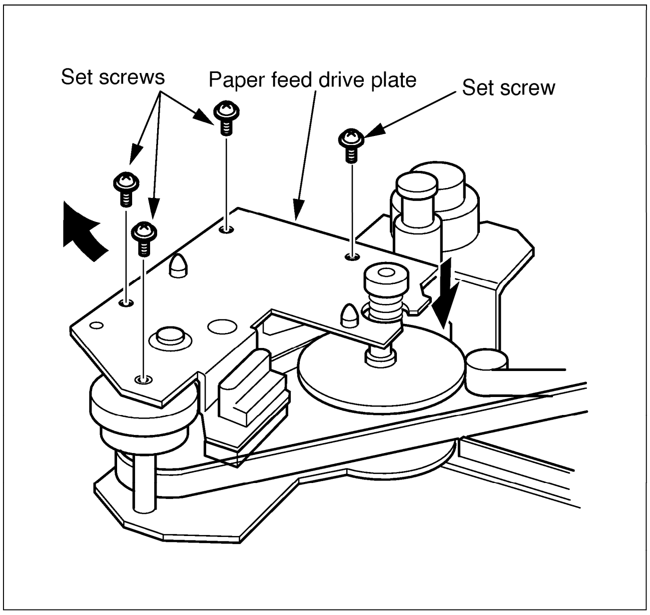
2. Replacing the Paper Feed Drive Shaft and Fixing Input Gear

a. Procedure

(1) Remove the main motor unit.
(2) Remove the three set screws, then remove the fixing drive plate.
(3) Remove the fixing input gear.


Set screws
Fixing input gear
Fixing drive plate

(4) Remove the four set screws, then remove the paper feed drive plate.


Set screws
Paper feed drive plate
Set screw

(5) Remove the drive spacer and the paper feed input gear.

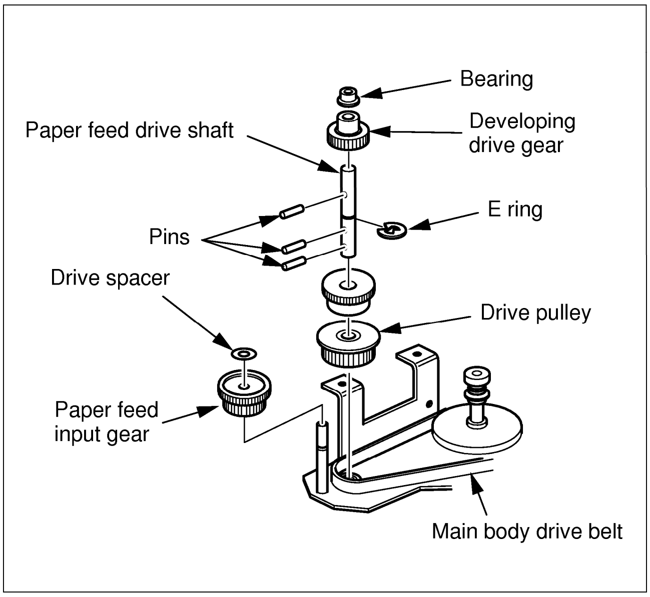
Caution: Do not forget to re-install the drive spacer when re-installing the paper feed input gear.

(6) Remove the bearing and developing drive gear, then pull out the pin remaining in the paper feed drive shaft.

(7) Remove the main body drive belt from the drive pulley.

(8) Remove the E ring from the paper feed drive shaft, then remove the drive pulley.

(9) Remove the paper feed drive shaft, then pull out the pin remaining in the paper feed drive shaft.


Bearing
Paper feed drive shaft
Developing drive gear
E ring
Pins
Drive spacer
Drive pulley
Paper feed input gear
Main body drive belt

(10) Re-install the above parts in the opposite sequence to removal.

3. Replacing the Assist Drive Clutch (MC11)

a. Procedure

(1) Remove the nine set screws, then remove the rear cover.

(2) Remove the three set screws, then remove the fly wheels (3 wheels).

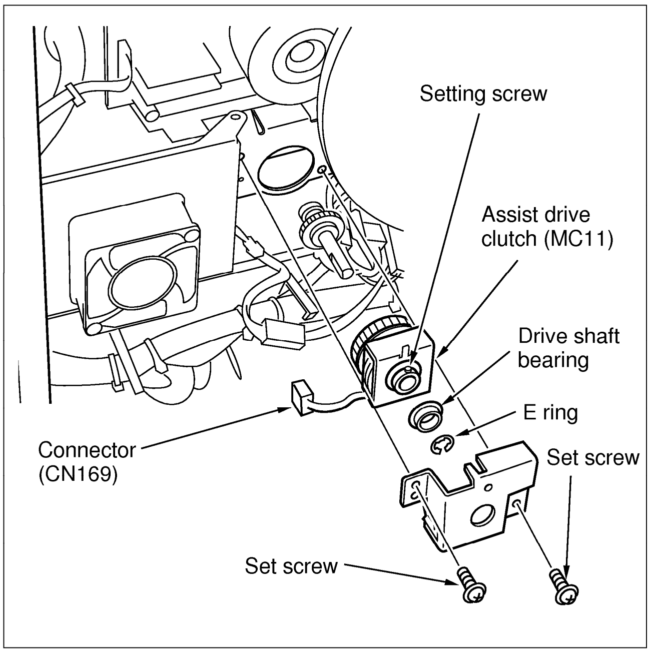
(3) Remove the set screw and the connector (CN86), then remove the wiring support element. (Refer to the 2nd paper feed unit removing/re-installing of the paper feed section.)

(4) Remove the two set screws, then remove the conveyance clutch shaft ass'y.

(5) Remove the connector (CN169).

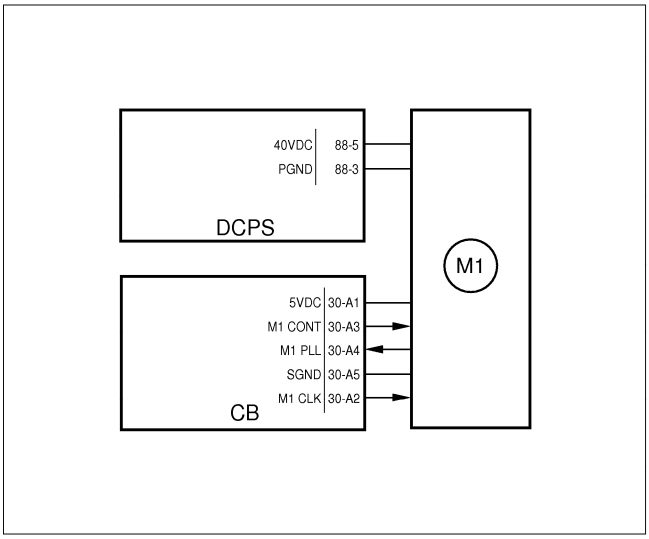
(6) Remove the E ring, then remove the drive shaft bearing.

(7) Loosen the set screw, then remove the assist drive clutch (MC11).


Setting screw
Assist drive clutch (MC11)
Drive shaft bearing
E ring
Set screw
Connector (CN169)
Set screw

(8) Re-install the above parts in the opposite sequence to removal.

[4] M1 (main) Control


40VDC 88-5
PGND 88-3
DCPS
M1
5VDC 30-A1
M1 CONT 30-A3
M1 PLL 30-A4
SGND 30-A5
M1 CLK 30-A2
CB

M1 (main) is controlled by the CB (control board).

1. Operation

M1 is a 40 V drive DC motor which drives the toner recycle, conveyance, 2nd paper feed and fixing sections. M1 is PLL-controlled by feedback signals from a speed sensor installed inside M1 itself, maintaining it at a constant speed.
M1 goes ON when the Start button is pressed, and goes OFF again when the final copy has been exited.
During warm-up, M1 rotates, causing the fixing roller to rotate.

2. Signals

a. Input signal

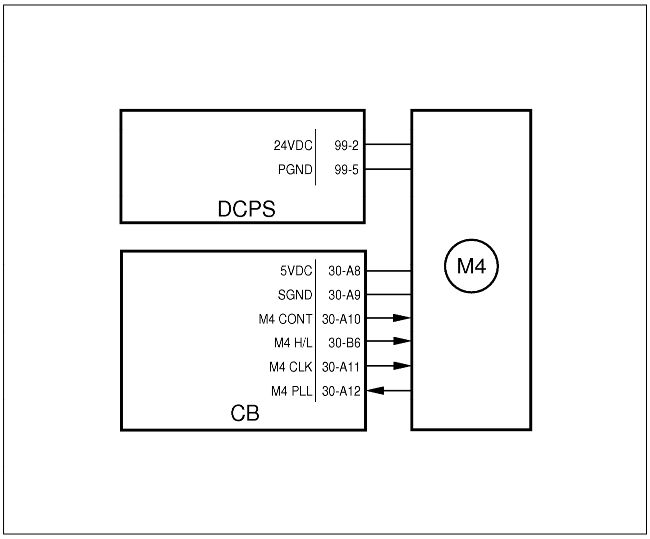
(1) M1 PLL (M1 → CB)
M1 rotation monitoring signal
[H]: Stop or abnormal or rotation
[L]: Normal rotation

b. Output signals

(1) M1 CONT (CB → M1)
M1 drive control signal
[L]: M1 ON
[H]: M1 OFF

(2) M1 CLK (CB → M1)
M1 rotational speed control reference clock signal

[5] M4 (drum) Control


24VDC 99-2
PGND 99-5
DCPS
M4
5VDC 30-A8
SGND 30-A9
M4 CONT 30-A10
M4 H/L 30-B6
M4 CLK 30-A11
M4 PLL 30-A12
CB

M4 (drum) is controlled by the CB (control board).

1. Operation

M4 is a 24 V drive DC motor which drives the drum and the cleaning guide roller. M4 is PLL-controlled by feedback signal from a speed sensor installed inside M4 itself, maintaining it at a constant speed.
M4 goes ON when the start button is pressed, and goes OFF again when the final copy has been exited.

2. Signals

a. Input signal

(1) M4 PLL (M4 → CB)
[L] is output when M4 reaches the specified speed.

b. Output signals

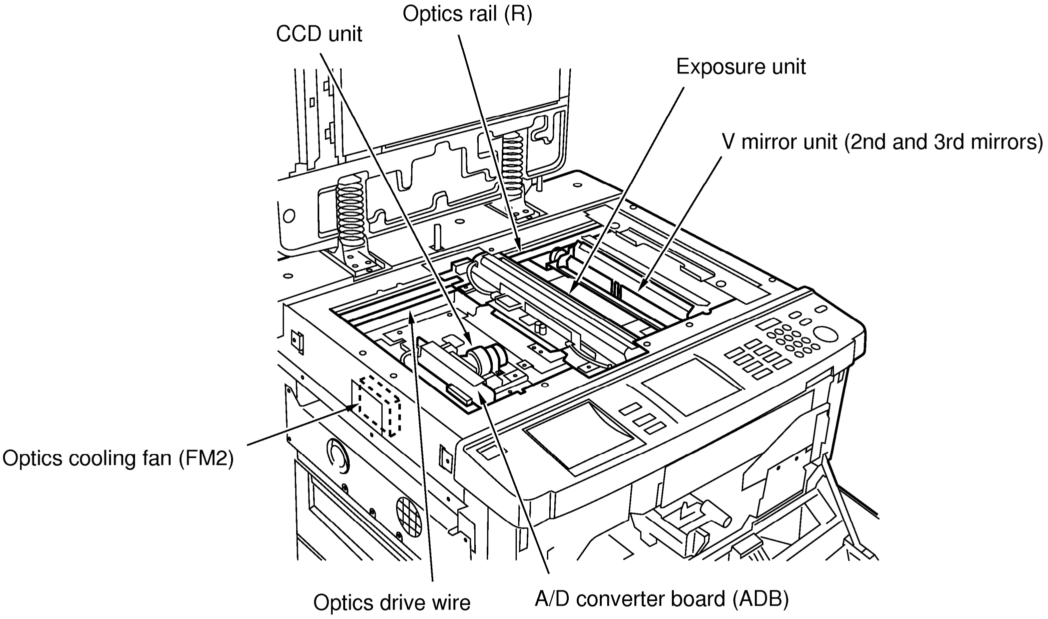
(1) M4 CONT (CB → M4)
M4 drive control signal
[L]: M4 ON
[H]: M4 OFF

(2) M4 H/L (CB → M4)
M4 rotational speed control gain switchover signal
Normally [H]: 370 mm/sec
[L]: 185 mm/sec

(3) M4 CLK (CB→M4)
M4 rotational speed control reference clock signal

READ SECTION

[1] Composition


CCD unit
Optics rail (R)
Exposure unit
V mirror unit (2nd and 3rd mirrors)
Optics cooling fan (FM2)
Optics drive wire
A/D converter board (ADB)

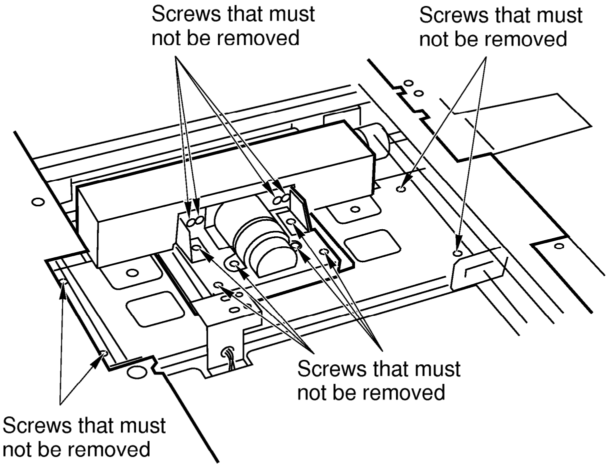
[2] Mechanisms

Mechanism	Method
Light source	Xenon lamp
Exposure	Light source shift slit exposure
Scanning	Platen original scanning: 1st, 2nd, 3rd mirror shift RADF original scanning: Fixed light source/Original moving
Lamp power supply	Lamp cord
Cooling of optics	Cooling of intake air using a fan

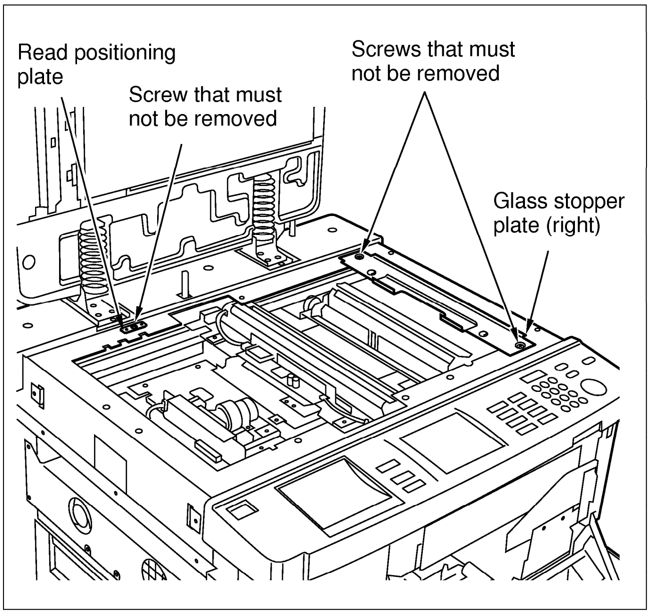
[3] Disassembly and Re-assembly

1. Screws that must not be removed

a. The 14 set screws of the CCD unit


Screws that must not be removed
Screws that must not be removed
Screws that must not be removed
Screws that must not be removed

b. The read positioning plate set screw and the two glass stopper plate (right) set screws.


Read positioning plate
Screw that must not be removed
Screws that must not be removed
Glass stopper plate (right)

2. Removing and Re-installing the CCD Unit

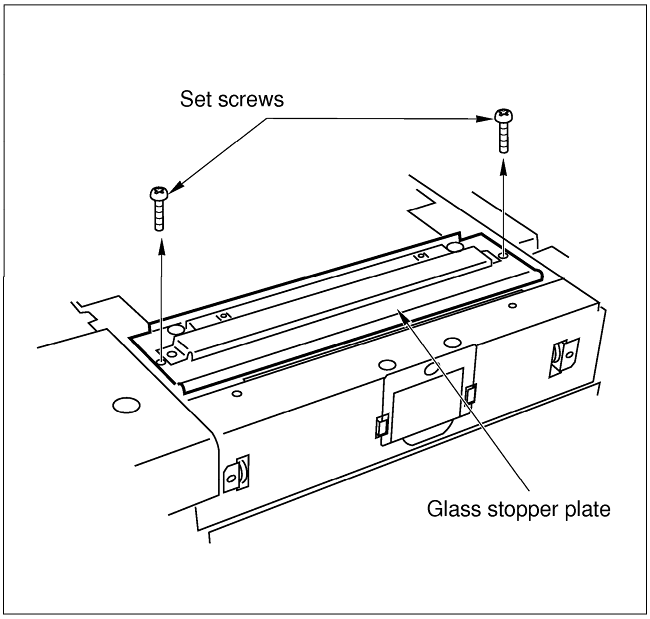
⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

Caution: Be sure to perform image adjustment after installing the CCD unit. (For details, refer to "Adjustment section".)

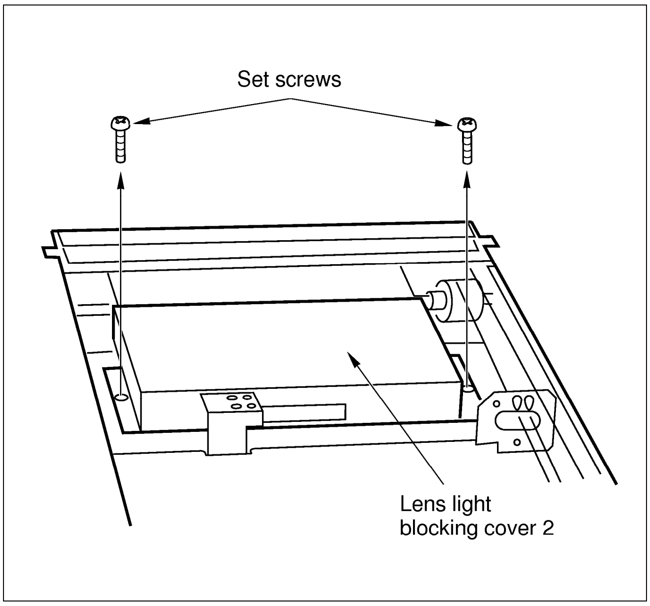
a. Procedure

(1) Remove the original stopper plate, original stopper plate (right/rear), platen glass and upper cover (middle).

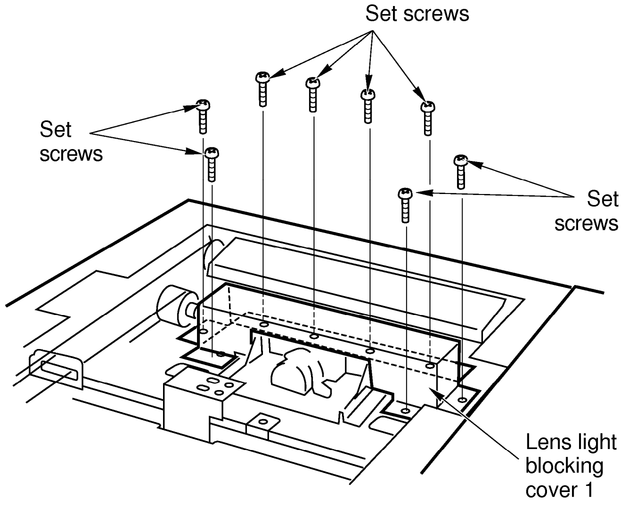
(2) Remove the two set screws, then remove the glass stopper plate.


Set screws
Glass stopper plate

(3) Remove the two set screws, then remove the lens light blocking cover 2.


Set screws
Lens light blocking cover 2

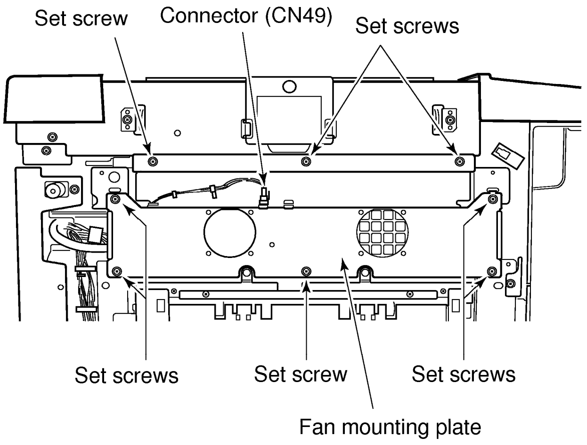
(4) Remove the eight set screws, then remove the lens light blocking cover 1.


Set screws
Set screws
Set screws
Lens light blocking cover 1

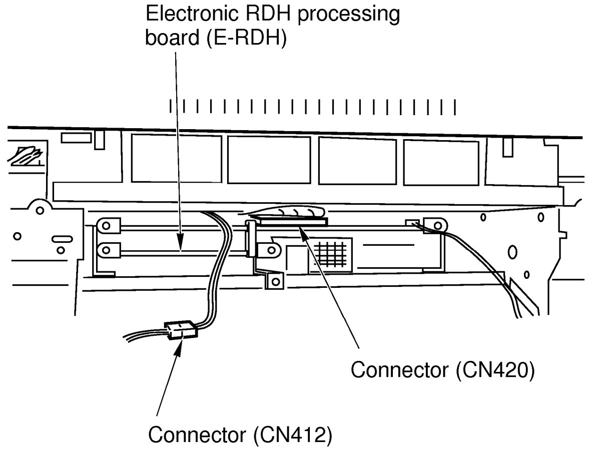
(5) Remove the left side upper cover.

(6) Disconnect the connector (CN49).

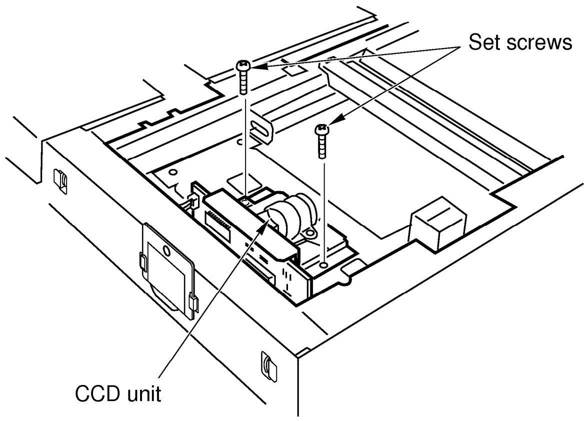
(7) Remove the eight set screws, then remove the fan mounting plate.


Set screw
Connector (CN49)
Set screws
Set screws
Set screw
Set screws
Fan mounting plate

(8) Disconnect the two connectors (CN420 and 412).


Electronic RDH processing board (E-RDH)
Connector (CN420)
Connector (CN412)

(9) Remove the two set screws, then remove the CCD unit.


Set screws
CCD unit

(10) Re-install the CCD unit in the opposite sequence to removal.

3. Replacing the Exposure Lamp

⚠**Caution:**

1. **Be sure that the power cord has been unplugged from the power outlet.**
2. **DO NOT touch the glass of the exposure lamp with bare hands.**

Caution:

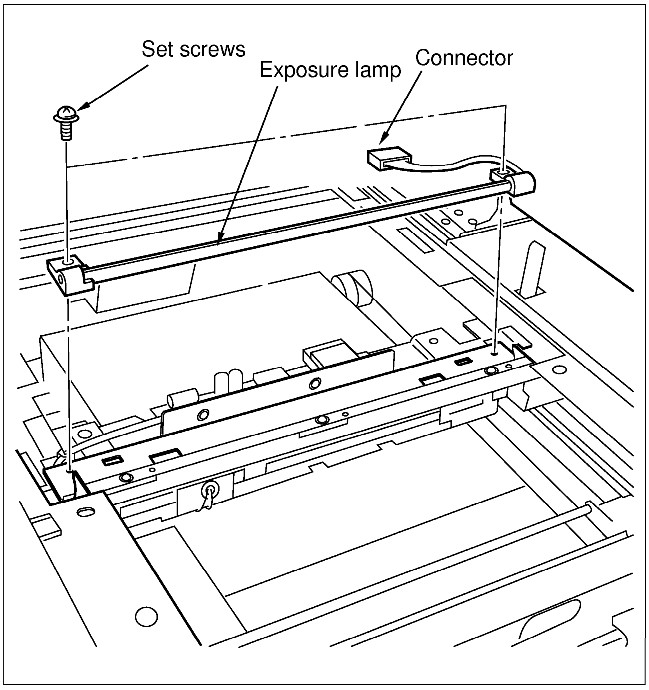
Be sure to check the image after installing the exposure lamp. (For details, refer to "Adjustment section".)

a. Procedure

(1) Remove the original stopper plate, original stopper plate (right/rear), platen glass and the upper cover (middle).

(2) Move the exposure unit to the notch of the main body frame on the paper exit side.

(3) Disconnect the connector and remove the two set screws, then remove the exposure lamp.



(4) Re-install the exposure lamp in the opposite sequence to removal.

4. Removing and Re-installing the Exposure Unit

⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

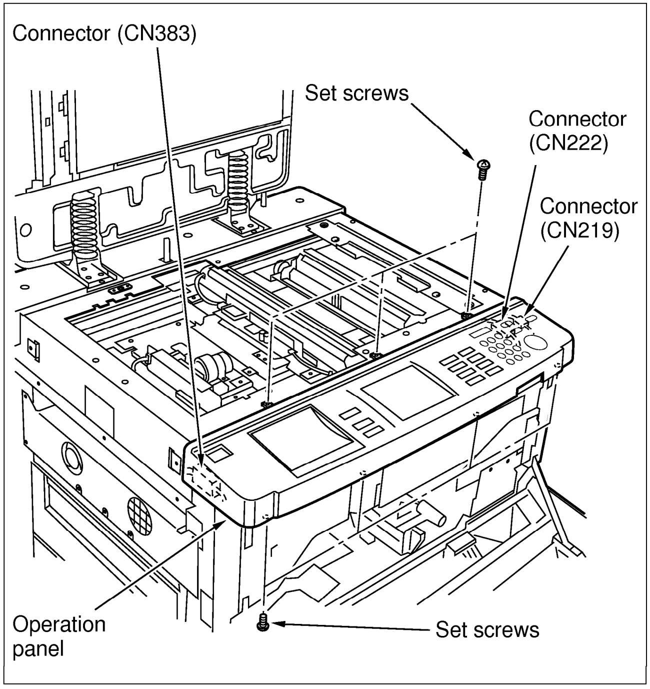
Caution:

1. Use the optics positioning jig when installing the exposure unit.
2. Be sure to perform image adjustment after installing the exposure unit. (For details, refer to "Adjustment section".)

a. Removal procedure

(1) Remove the original stopper plate, original stopper plate (right/rear), platen glass and upper cover (middle).

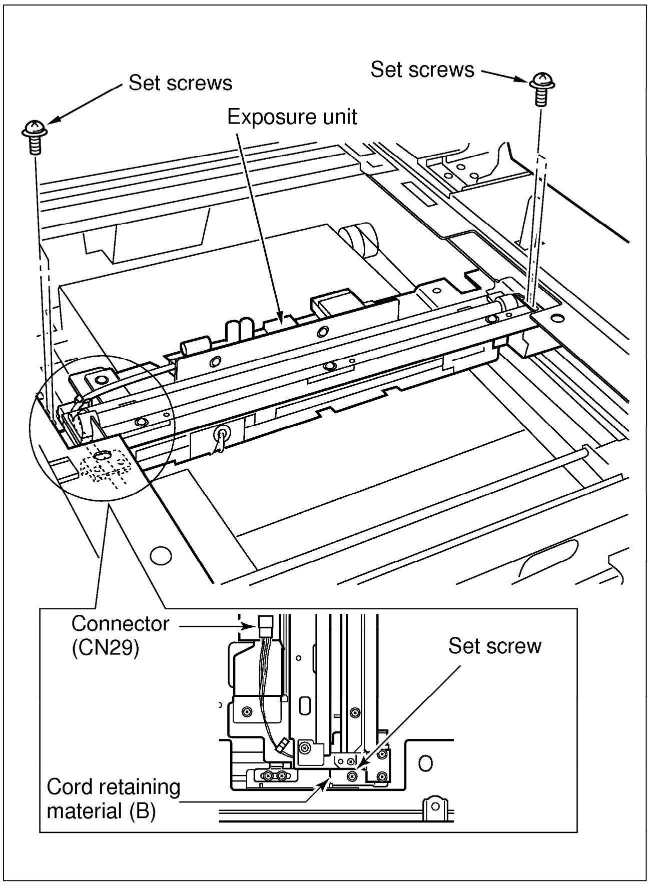
(2) Remove the seven set screws, then remove the operation panel and disconnect the three connectors (CN219, 222 and 383).



(3) Move the exposure unit to the notch of the main body frame on the paper exit side.

(4) Remove the set screw, then remove the cord retaining material (B) and disconnect the connector (CN29).

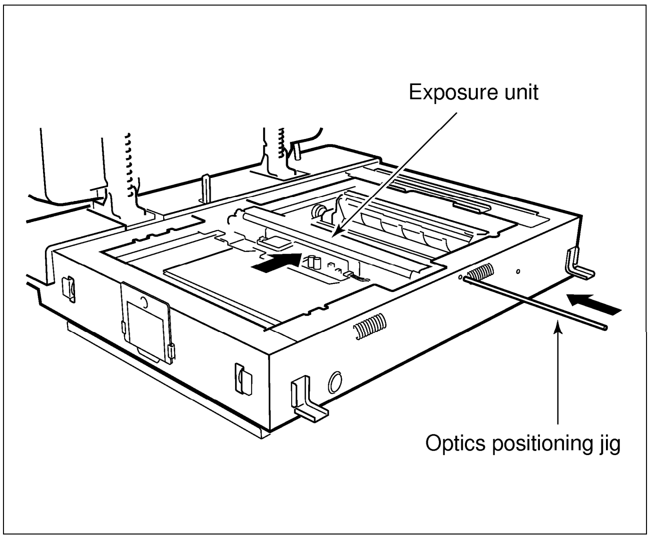
(5) Remove the four set screws, then remove the exposure unit.


Set screws
Set screws
Exposure unit
Connector (CN29)
Set screw
Cord retaining material (B)

b. Re-installation procedure

(1) Insert the Optics positioning jig into the exposure unit mounting position from the front.

(2) Slide the exposure unit to the paper feed side until it touches the Optics positioning jig.


Exposure unit
Optics positioning jig

(3) Install the exposure unit on the optics wire mounting piece using the four set screws.

5. Installing the Optics Wire

Caution:

1. When winding the wire around the pulley, be sure to run the wire tightly to ensure that it does not ride up the side of the pulley.
2. When re-tensioning or replacing the optics wire, be sure to use the optics positioning jig.
3. Be sure to perform image adjustment after replacing or re-installing the wire. (For details, refer to "Adjustment section".)

a. Procedure

(1) Remove the exposure unit.

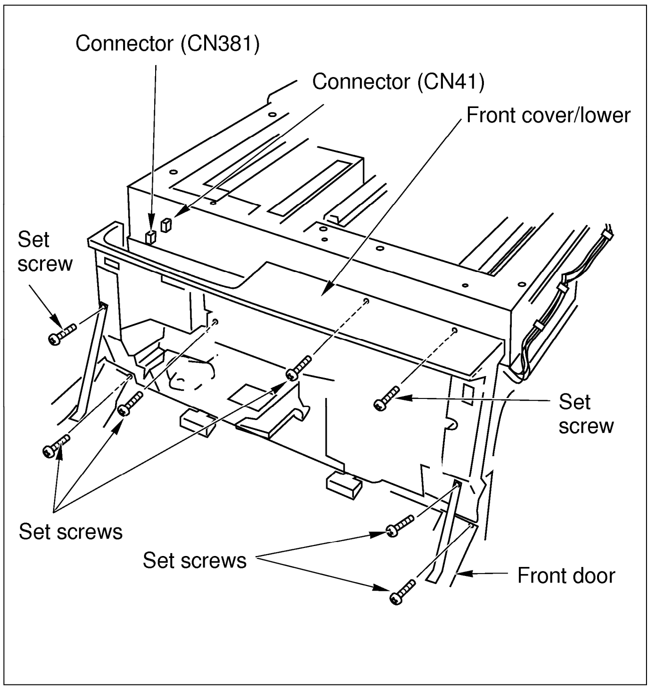
(2) Remove the glass stopper plate.

(3) Remove the two set screws, then remove the belt of the front door from the main body.

(4) Disconnect the two connectors (CN381 and 41).

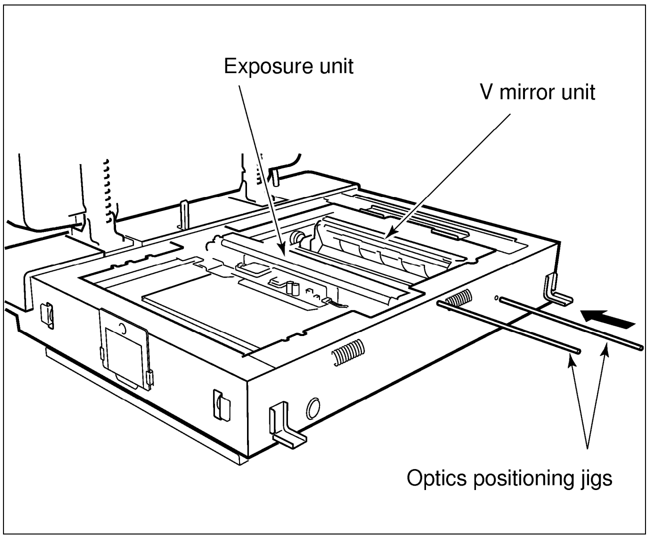
(5) Remove the five set screws, then remove the right side upper cover.

(6) Remove the five set screws, then remove the front cover/lower.


Connector (CN381)
Connector (CN41)
Front cover/lower
Set screw
Set screw
Set screws
Set screws
Front door

(7) Move the V mirror unit to the paper feed side, then insert the optics positioning jigs from the front so as to fix the V mirror unit. Ensure that the jigs pass through the V mirror unit.

(8) Insert the Optics positioning jigs to the exposure unit mounting position from the front.



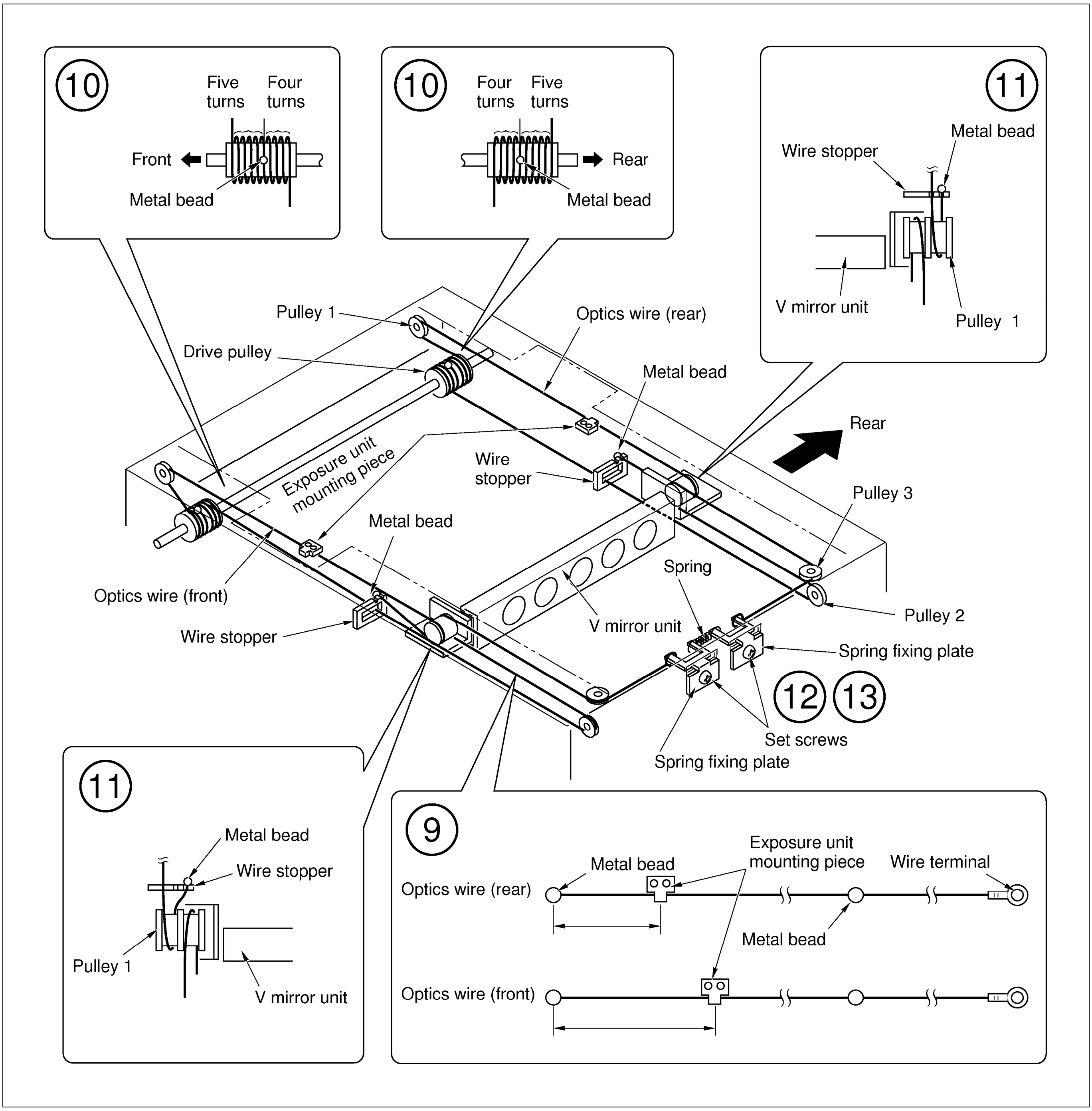
(9) The exposure unit mounting piece is installed on the optics wire in advance. The position of the mounting piece differs depending upon whether it is on the front or the rear wire. Use the wire that has the shorter length from the metal bead at the end to the mounting piece, at the rear.

(10) Place the metal bead at the mid-point of each optics wire in the mounting hole of the drive pulley, then wind five turns around the pulley to the outside, and four turns to the inside, starting from this point.

Caution:

1. Ensure that there is a metal bead at the end of the outer wire, and a wire terminal at the end of the inner wire.
2. Pull out the outer wire from the top of the drive pulley in the paper exit direction, and pull out the inner wire from the bottom of the drive pulley in the paper feed direction.

(11) After winding the outer wire, fix it to the wire stopper via the outer side of pulley 1 and the V mirror pulley.


⑩
Five turns
Four turns
Front
Metal bead
⑩
Four turns
Five turns
Rear
Metal bead
⑪
Metal bead
Wire stopper
V mirror unit
Pulley 1
Pulley 1
Drive pulley
Optics wire (rear)
Metal bead
Rear
Exposure unit mounting piece
Wire stopper
Pulley 3
Metal bead
Spring
Optics wire (front)
V mirror unit
Pulley 2
Wire stopper
Spring fixing plate
⑫ ⑬
Set screws
Spring fixing plate
⑪
Metal bead
Wire stopper
Pulley 1
V mirror unit
⑨
Exposure unit mounting piece
Metal bead
Wire terminal
Optics wire (rear)
Metal bead
Optics wire (front)

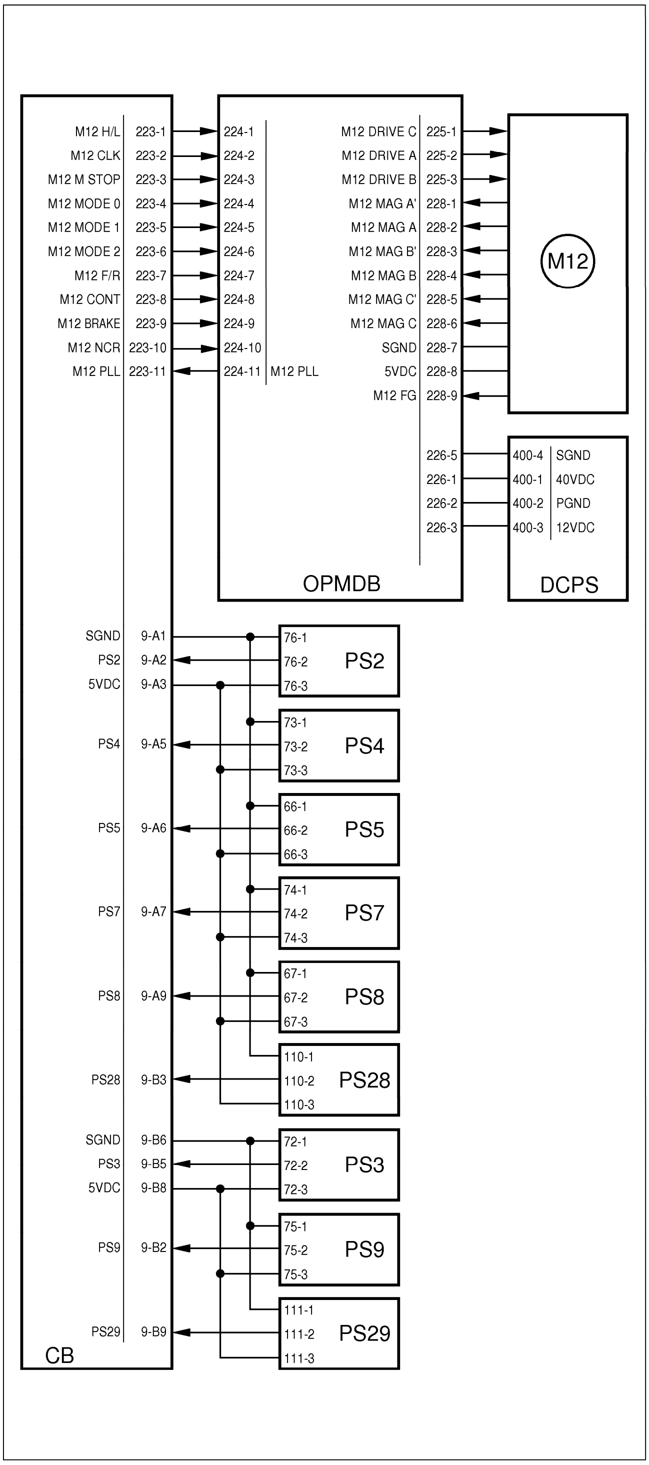
Note: There are two grooves in the wire stopper. Ensure that the outer groove is at the rear and the inner groove at the front.

(12) Pass the inner wire through the notch in the wire stopper, reverse it at pulley 2, then pass it around the inside of the V mirror pulley and also around pulley 3, in that sequence, and attach the wire terminal to the spring fixing plate. At this time, temporarily fix the spring fixing plate with the set screw.

(13) Install the other wire using the same procedure.

(14) Slacken each screw that was temporarily fixed, then install the spring on the spring fixing plate and fix the each screw once again.

[4] M12 (optics drive) Control


M12 H/L 223-1 224-1
M12 CLK 223-2 224-2
M12 M STOP 223-3 224-3
M12 MODE 0 223-4 224-4
M12 MODE 1 223-5 224-5
M12 MODE 2 223-6 224-6
M12 F/R 223-7 224-7
M12 CONT 223-8 224-8
M12 BRAKE 223-9 224-9
M12 NCR 223-10 224-10
M12 PLL 223-11 224-11 M12 PLL
M12 DRIVE C 225-1
M12 DRIVE A 225-2
M12 DRIVE B 225-3
M12 MAG A' 228-1
M12 MAG A 228-2
M12 MAG B' 228-3
M12 MAG B 228-4
M12 MAG C' 228-5
M12 MAG C 228-6
SGND 228-7
5VDC 228-8
M12 FG 228-9
M12
226-5 400-4 SGND
226-1 400-1 40VDC
226-2 400-2 PGND
226-3 400-3 12VDC
OPMDB
DCPS
SGND 9-A1
PS2 9-A2
5VDC 9-A3
76-1 76-2 76-3 PS2
PS4 9-A5
73-1 73-2 73-3 PS4
PS5 9-A6
66-1 66-2 66-3 PS5
PS7 9-A7
74-1 74-2 74-3 PS7
PS8 9-A9
67-1 67-2 67-3 PS8
PS28 9-B3
110-1 110-2 110-3 PS28
SGND 9-B6
PS3 9-B5
5VDC 9-B8
72-1 72-2 72-3 PS3
PS9 9-B2
75-1 75-2 75-3 PS9
PS29 9-B9
111-1 111-2 111-3 PS29
CB

M12 (optics drive) is driven by the OPMDB (optics motor drive board), and is controlled by the CB (control board).
Related signals are PS2 (scanner brake), PS3 (shading position), PS4 (paper feed restart), PS5 (optical return), PS7 (optical timing), PS8 (glass detection), PS9 (ADF home position), PS28 (scan EE), and PS29 (ADF brake).

1. Operation

a. Operation of M12

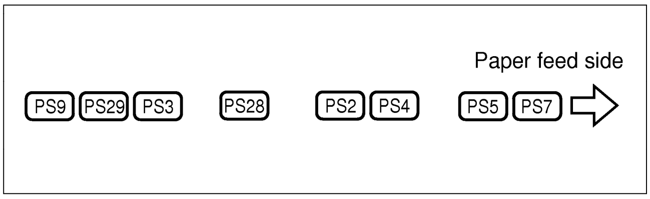
M12 is a 3-phase brushless DC motor which is driven using a 3-phase bipolar method. The current flowing through the windings is switched according to the position of the rotor which is detected by a sensor (magnetic sensor) inside the motor.

b. Moving speed of the exposure unit

Moving speed

Magnification	Moving speed
During scanning	370 mm/sec (life size)
Forward	1520 mm/sec
Home position search	70 mm/sec
Shading correction read	70 mm/sec

c. Position of each sensor

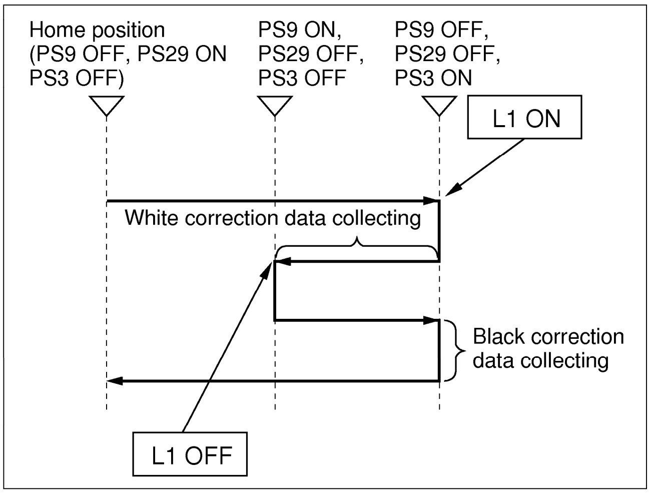

Paper feed side
PS9
PS29
PS3
PS28
PS2
PS4
PS5
PS7

d. Home position search of the exposure unit

The return operation is executed at low speed when the exposure unit is not at the home position during the main switch ON and the start button is pressed, and detects the home position of the exposure unit when PS9 (ADF home position) is OFF and PS29 (ADF brake) is ON.

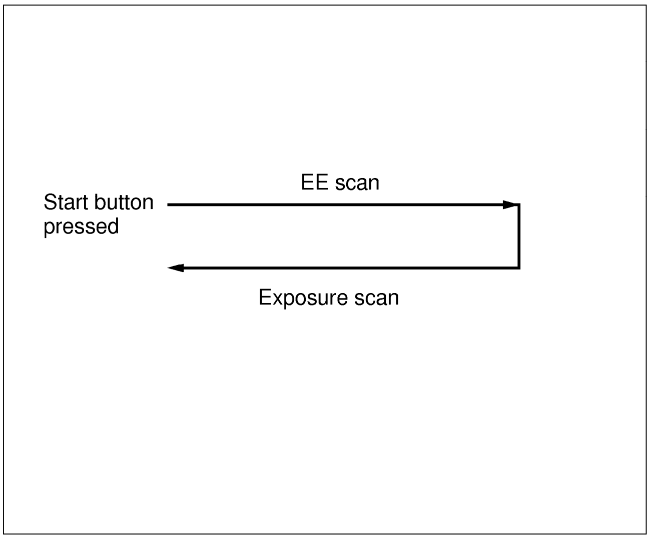
e. Shading correction read operation

At the position where PS3 (shading position) goes ON, the light reflected from the white reference plate installed under- neath the glass stopper plate is read.

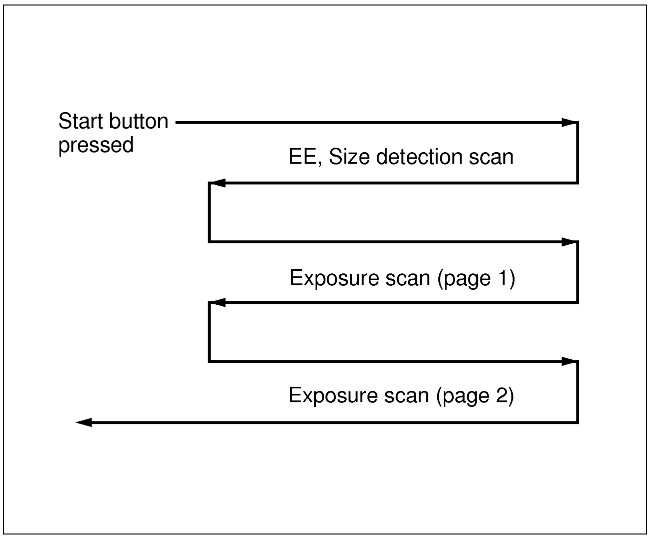

Home position
(PS9 OFF, PS29 ON
PS3 OFF)
PS9 ON,
PS29 OFF,
PS3 OFF
PS9 OFF,
PS29 OFF,
PS3 ON
L1 ON
White correction data collecting
Black correction data collecting
L1 OFF

f. Other operations

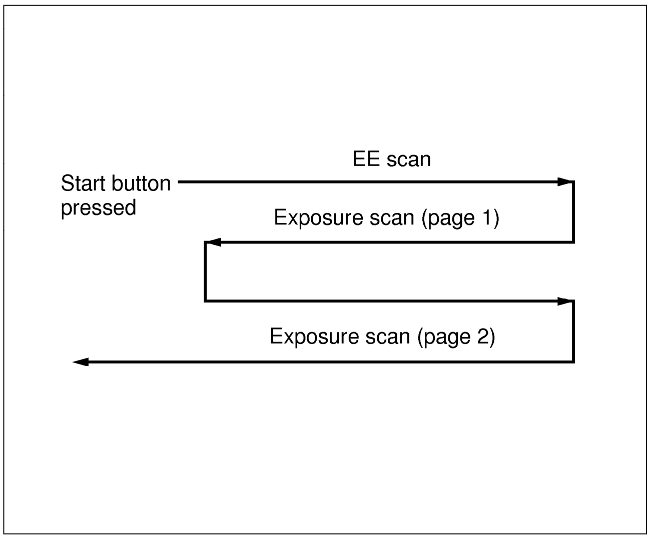
(1) During copying (manual, EE)


Start button pressed
EE scan
Exposure scan

(2) Non-image area erase (+ Book copy)


Start button pressed
EE, Size detection scan
Exposure scan (page 1)
Exposure scan (page 2)

(3) Book copy (EE)


Start button pressed
EE scan
Exposure scan (page 1)
Exposure scan (page 2)

2. Signals

a. Input signals

(1) PS2 (PS2 → CB)
The brake is applied to M12 after the specified period from when PS2 goes ON during the forward scan of the exposure unit
[L]: Exposure unit detected
[H]: Exposure unit not detected

(2) PS3 (PS3 → CB)
White reference plate read position detection signal of the exposure unit
[L]: The exposure unit is in the white reference plate read position.
[H]: The exposure unit is not in the white reference plate read position.

(3) PS4 (PS4 → CB)
Original leading edge detection signal during platen mode
The timer that determines the 2nd paper feed start timing starts when PS4 goes ON during the exposure unit
[L]: Exposure unit detected
[H]: Exposure unit not detected

(4) PS5 (PS5 → CB)
Return position detection signal of the exposure unit on the leading edge of the original during platen mode
[L]: Exposure unit detected
[H]: Exposure unit not detected

(5) PS7 (PS7 → CB)
Return position detection signal of the exposure unit on the leading edge of the original during platen mode
[L]: Exposure unit detected
[H]: Exposure unit not detected

(6) PS8 (PS8 → CB)
Signals to detect the setting of the original glass
[L]: Original glass detected
[H]: Original glass not detected

(7) PS9 (PS9 → CB)
Signals to detect the home position of the exposure unit
[L]: Exposure unit detected
[H]: Exposure unit not detected

(8) PS28 (PS28 → CB)
Signals to detect the EE scan (exclude photo mode, non-image area erase mode) starting position of the exposure unit
[L]: Exposure unit detected
[H]: Exposure unit not detected

(9) PS29 (PS29 → CB)
Signals to detect the home position and the M12 brake starting position during return of the home position of the exposure unit
[L]: Exposure unit detected
[H]: Exposure unit not detected

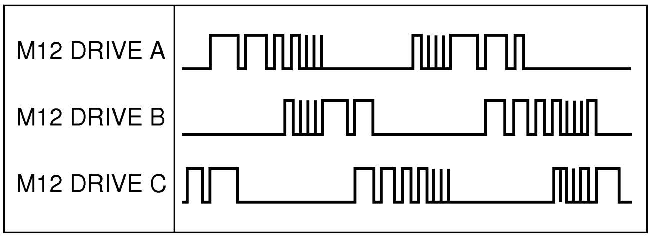
(10) M12 PLL (OPMDB → CB)
[L] is output when M4 reaches the specified speed.

(11) M12 MAG A/A' (M12 → OPMDB)
M12 MAG B/B' (M12 → OPMDB)
M12 MAG C/C' (M12 → OPMDB)
These are the output signals from the sensors (magnetic sensors) contained in M12. OPMDB detects the position of the rotor of the motor by means of these signals, and switches over the M12 DRIVE A to C output.

(12) M12 FG (M12 → OPMDB)
This is a feedback signal from the rotational speed sensor contained in M12. It is compared with the M12 CLK signal from the CB, and the output voltage adjusted so that the feedback signal becomes the same as the M12 CLK signal, thus controlling the rotational speed of M12.

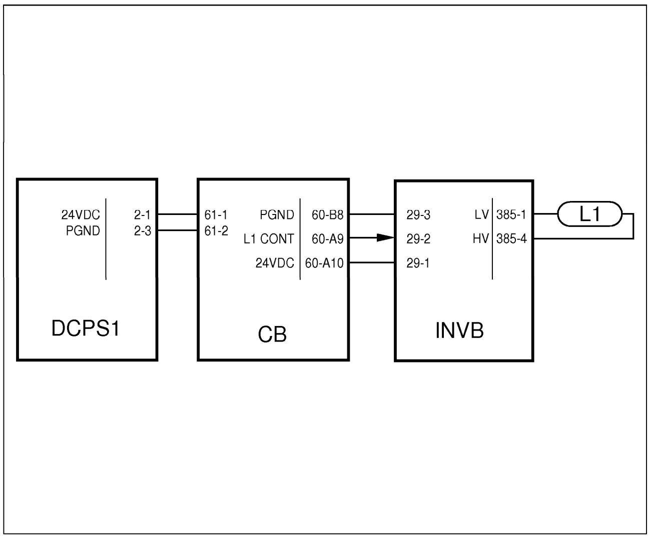
b. Output signals

(1) M12 DRIVE A, B, C (OPMDB → M12)
This is the M12 drive signal. While M12 is rotating, voltages are output sequentially from M12 DRIVE A to C, and applied to M12.
The voltage from each output that is applied to M12 consists of the pulses shown below. The pulse width of this output changes according to the rotation condition of M12, as shown in the figure, and as a result the RMS value of the voltage applied to M12 changes, causing the speed to be regulated.



(2) M12 CONT (CB → OPMDB)
M12 ON/OFF control signal
[L]: M12 ON
[H]: M12 OFF
(3) M12 CLK (CB → OPMDB)
M12 rotational speed control reference clock signal
(4) M12 F/R (CB → OPMDB)
Signal used to control the rotational direction of M12
[L]: Forward operation
[H]: Return operation
(5) M12 BRAKE (CB → OPMDB)
M12 brake control signal
(6) M12 NCR (CB → OPMDB)
M12 brake control signal
(7) M12 MODE 0, 1, 2 (CB → OPMDB)
M12 rotational speed control signal
Eight rotational speed modes are activated by combinations of these three signals.

[5] Exposure control



Power is supplied to L1 (exposure lamp) from the INVB (inverter board) and is controlled by the CB (control board).

1. Operation

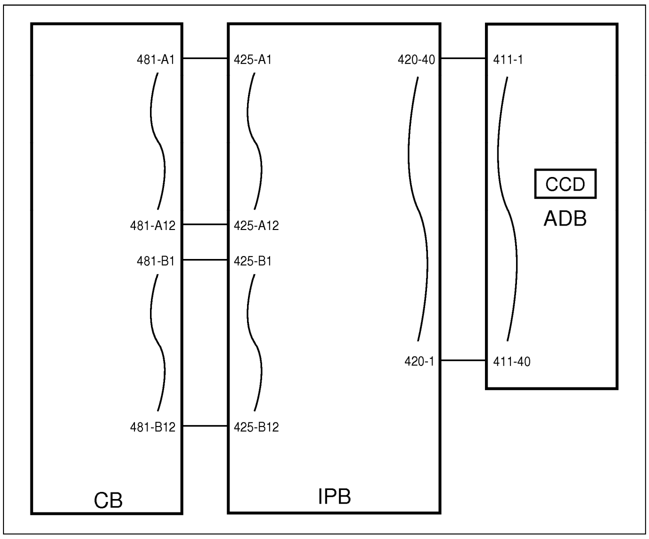
L1 is a xenon lamp which is driven by an inverter circuit. A xenon lamp provides a stable light intensity and also generates relatively little heat, hence it does not require a light intensity control circuit that is used in conventional copying machines, and also protective control that is normally required due to heat generation from the lamp is no longer used.

2. Signal

a. Output signal

(1) L1 CONT (CB → INVB)
L1 ON/OFF control signal
[L]: L1 ON
[H]: L1 OFF

[6] Original Read Control


481-A1
481-A12
481-B1
481-B12
CB
425-A1
425-A12
425-B1
425-B12
420-40
420-1
IPB
411-1
411-40
CCD
ADB

The original is read by the ADB (A/D converter board) and the CCD image sensor installed on the ADB.

1. Operation

The light reflected off the exposed original passes through a lens to the CCD image sensor. The analog voltages that correspond to the input light intensity are A/D-converted in the ADB, and output to the IPB (image processing board).

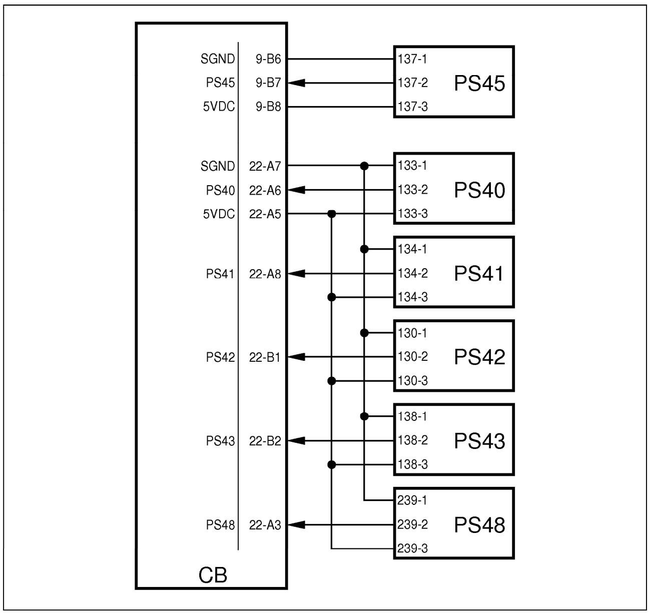
a. Original read operation

The original read timing is as follows.

(1) During a platen copy operation
When PS4 (paper feed restart) goes ON.

(2) During a DF copy operation
After the specified time from the ON of PS308 (original conveyance) by original leading edge.

[7] APS Control


SGND 9-B6
PS45 9-B7
5VDC 9-B8
SGND 22-A7
PS40 22-A6
5VDC 22-A5
PS41 22-A8
PS42 22-B1
PS43 22-B2
PS48 22-A3
CB
137-1
137-2
137-3
PS45
133-1
133-2
133-3
PS40
134-1
134-2
134-3
PS41
130-1
130-2
130-3
PS42
138-1
138-2
138-3
PS43
239-1
239-2
239-3
PS48

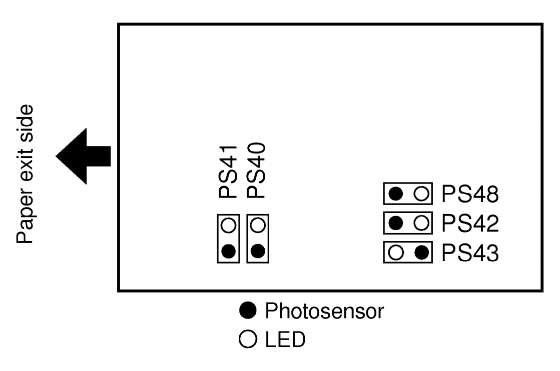
The APS differs depending upon whether the platen mode or the DF mode is used. The APS control is carried out by processing the signal of the RADF original size detection sensor read by CB (control board).

1. Operation

a. APS detection operation

(1) During a DF copy operation
A paper size is detected by ON or OFF of PS302 (original size detect 1) and PS303 (original size detect 2) of the paper feed tray of RADF, and resistance value of VR301 (original size detect).

(2) During a platen copy operation
APS detection is an operation that detects the paper size according to the particular ON/OFF combination of PS40 (APS 1), PS41 (APS2), PS42 (APS 3), PS43 (APS 4) and PS48 (APS 7).
The APS sensor consists of LEDs and photosensors. APS detection takes place as a result of the light emitted from each LED being reflected off the original and received by the photosensor.


Paper exit side
PS41
PS40
PS48
PS42
PS43
● Photosensor
○ LED

The relation between each sensor and the paper size is shown below.

Sensor / Paper size	PS40 PS302	PS41 PS303	PS42	PS43	PS48
A3	ON	ON	ON	ON	ON
B4	ON	ON	ON	OFF	ON
A4R	ON	OFF	OFF	OFF	ON
B5R	OFF	OFF	OFF	OFF	ON
A4	OFF	OFF	ON	ON	ON
B5	OFF	OFF	ON	OFF	ON
Minimum size	OFF	OFF	OFF	OFF	OFF

b. APS detection timing

The APS detection timing differs depending upon whether the platen mode or the DF mode is used.

(1) During a DF copy operation
When either the DF mode is selected or an original is placed in the RADF paper feed tray, the original size is detected by PS302 (original size detect 1), PS303 (original size detect 2) and VR301 (original size detect).

(2) During a platen copy operation
APS detection takes place when PS45 (APS timing) goes ON.
APS detection stops when PS45 goes OFF.

2. Signals

a. Input signals

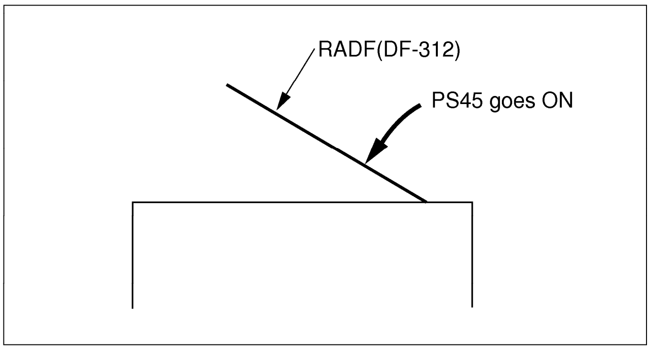
(1) PS40 (PS40 → CB)
Paper size detection signal
[L]: Paper is detected.
[H]: Paper is not detected.

(2) PS41 (PS41 → CB)
Paper size detection signal
[L]: Paper is detected.
[H]: Paper is not detected.

(3) PS42 (PS42 → CB)
Paper size detection signal
[L]: Paper is detected.
[H]: Paper is not detected.

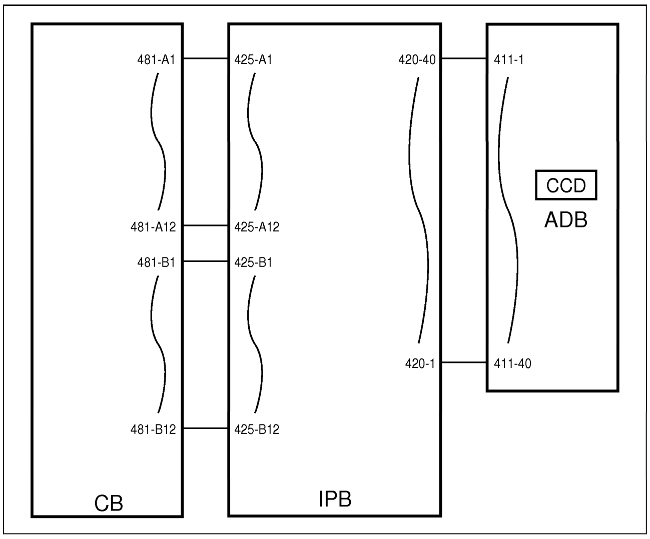
(4) PS43 (PS43 → CB)
Paper size detection signal
[L]: Paper is detected.
[H]: Paper is not detected.

(5) PS45 (PS45 → CB)
RADF opening/closing detection signal
Activates or deactivates the APS function during a platen copy operation.
[L]: ON (APS function activated)
[H]: OFF (APS function deactivated)



(6) PS48 (PS48 → CB)
Paper size detection signal
[L]: Paper is detected.
[H]: Paper is not detected.

[8] EE Control



EE control takes place during an EE scan as a result of the CCD image sensor reading the original density and selecting the most suitable copy γ correction curve.

EE processing is performed by the IPB (image processing board).

1. Operation

a. EE detection operation

(1) During Platen mode (normal)

Density is measured in the following range with PS28 (scan EE) being the starting point when the exposure unit moves from the home position to the leading edge of the original by turning the start button ON.

<EE sampling area>

Main scanning direction: 182mm from rear side of an original

Sub scanning direction: 182mm from when PS28 goes ON

(2) During Platen Copy (during photo mode, non-image area erase mode)

Density is measured in the following range by executing EE scan as PS4 (paper feed restart) being the starting point when the exposure unit moves from the home position to the leading edge of the original by turning the start button ON.

<EE sampling range>

Photo mode:

Main scanning direction: 182mm from rear side of an original

Sub scanning direction: 182mm from when PS4 goes ON

Non-image area erase mode:

Entire size detected by size detection scan

(3) During a DF copy mode

The image at the leading edge of the original is read by the original feed operation that takes place when the start button is pressed, and the read data is used to perform density measurement.

<EE sampling area>

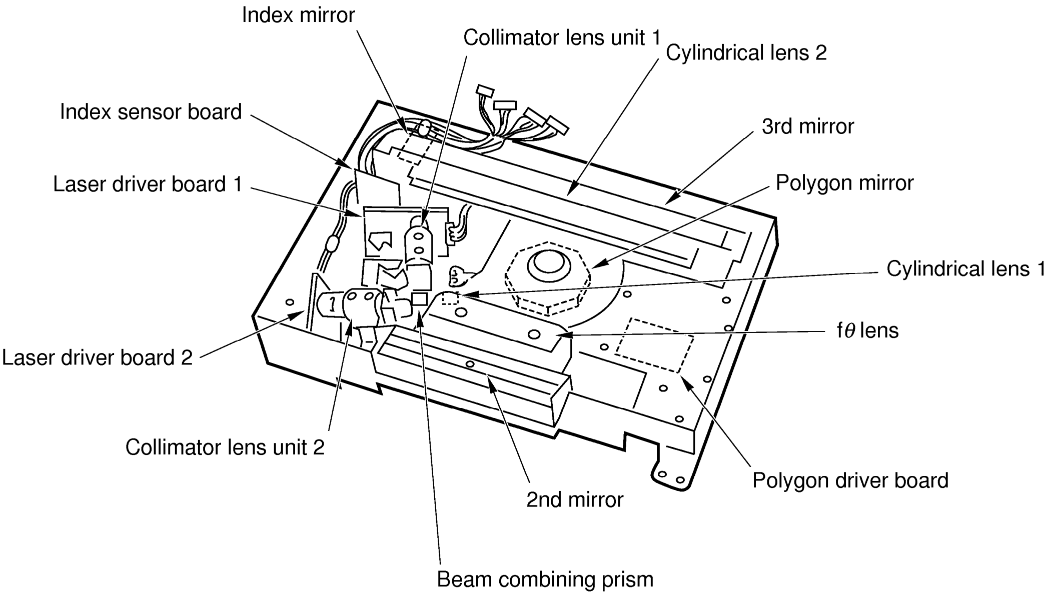
1) Main scanning direction
- An area of 20 mm inward of the original size detected by the APS
- If the original size cannot be determined by the APS, an area of 20 mm inward of the minimum original size set for the particular shipping destination of the machine.

2) Sub scanning direction

An area between 1 mm and 4 mm from the leading edge of the original

WRITE UNIT

[1] Composition

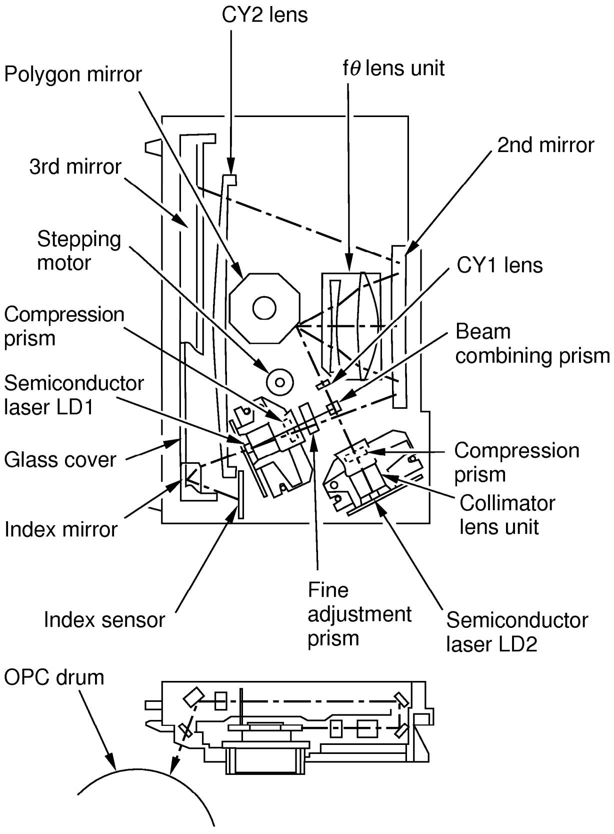

Index mirror
Collimator lens unit 1
Cylindrical lens 2
Index sensor board
3rd mirror
Laser driver board 1
Polygon mirror
Cylindrical lens 1
fθ lens
Laser driver board 2
Collimator lens unit 2
Polygon driver board
2nd mirror
Beam combining prism

[2] Mechanisms

	Mechanism	Method
*1	Scan	Polygon mirror (Rotational speed: 21850.4 rpm) (400 dpi standard mode)
	Light source	Laser diodes (two) (Output: Max. 35 mW)
*2	Positioning	Index sensor Fine adjustment prism
*3	Laser beam combining	Beam combining prism

***1: Path of laser beam**

The light output to each semiconductor laser is sent to the OPC drum via the collimator lens, compression prism, fine adjustment prism, beam combining prism, cylindrical lens 1, polygon mirror, fθ lens, 2nd mirror, cylindrical lens 2, and the 3rd mirror.

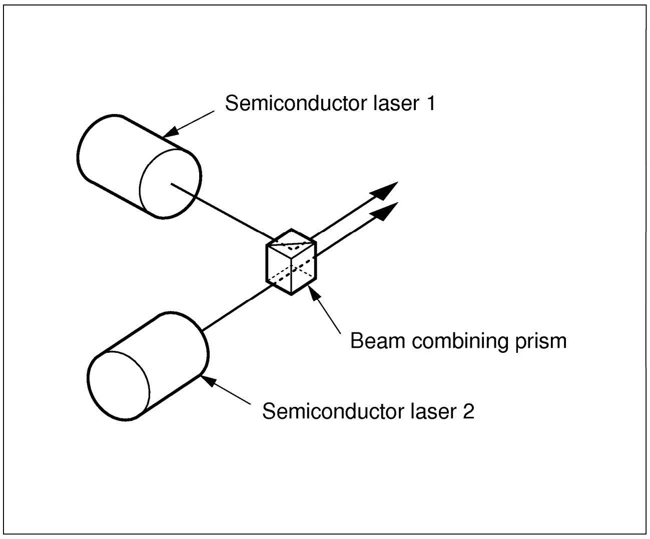

CY2 lens
Polygon mirror
fθ lens unit
2nd mirror
3rd mirror
Stepping motor
CY1 lens
Compression prism
Beam combining prism
Semiconductor laser LD1
Glass cover
Compression prism
Collimator lens unit
Index mirror
Index sensor
Fine adjustment prism
Semiconductor laser LD2
OPC drum

***2: Positioning**

Each laser beam is positioned by the compression prism and the fine adjustment prism.

***3: Combining the laser beams**

The two laser beams are output at right angles with respect to each other. The beam combining prism causes them to be output in the same direction.


Semiconductor laser 1
Beam combining prism
Semiconductor laser 2

[3] Disassembly and Re-assembly

1. Removing and Re-installing the Write Unit

⚠**Warning:**

(1) DO NOT energize the write unit when it is not in the correct position.

(2) DO NOT remove the cover from the write unit and the polygon unit cover.
If the laser beam gets into your eyes, you may lose your sight.

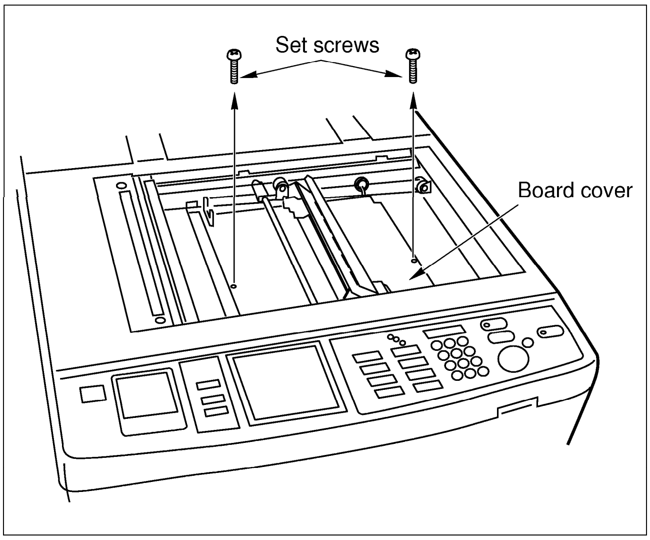
(3) DO NOT remove the write unit for at least two minutes after turning OFF the main switch.

⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

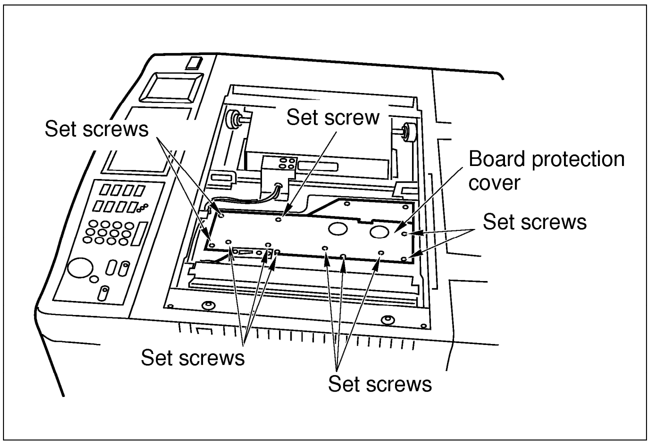
a. Procedure

(1) Remove the original stopper plate, original stopper plate (right/rear) and platen glass.

(2) Remove the two set screws, then remove the board cover.


Set screws
Board cover

(3) Remove the 11 set screws, then remove the board protection cover.


Set screws
Set screw
Board protection cover
Set screws
Set screws
Set screws

(4) Disconnect the four connectors (CN421, 422, 423 and 424) from the image processing board (IPB).

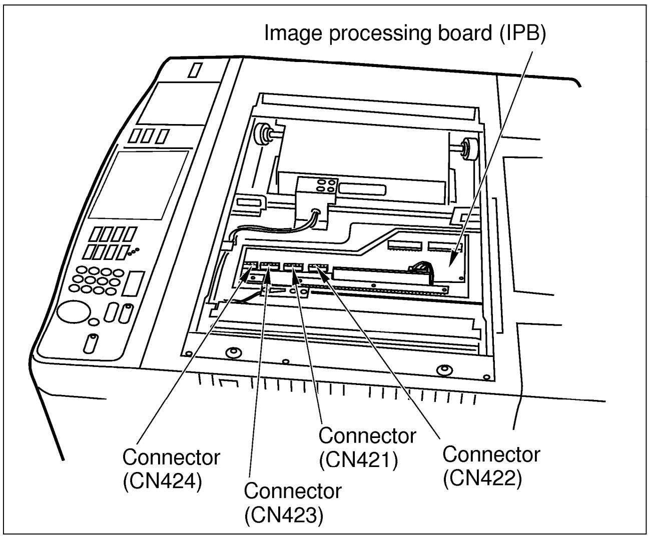
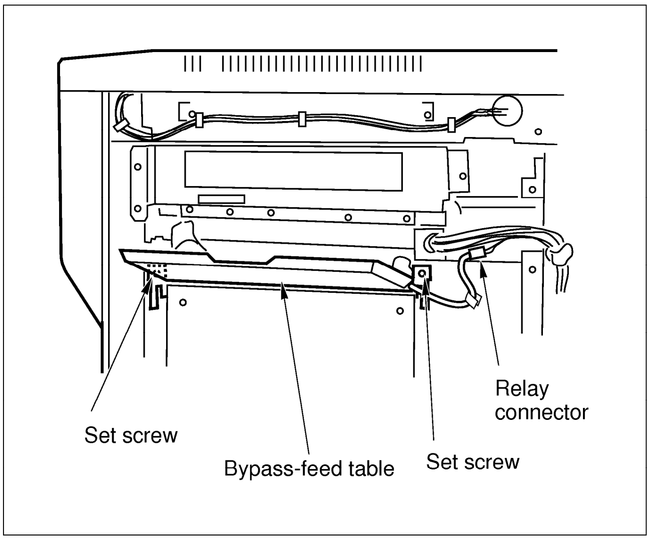


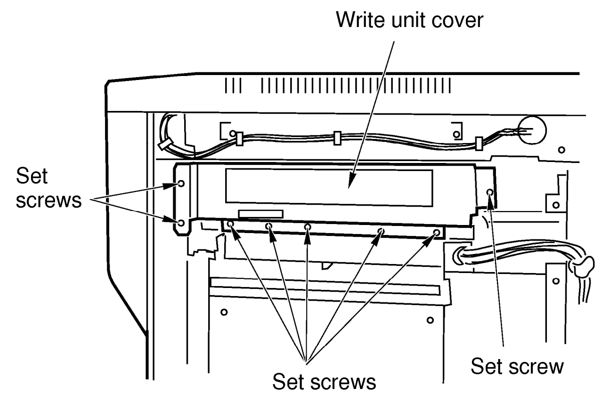
Image processing board (IPB)
Connector (CN424)
Connector (CN423)
Connector (CN421)
Connector (CN422)

(5) Slacken the five set screws, then remove the right side upper cover.

(6) Remove the relay connector and the two set screws, then remove the bypass-feed table.

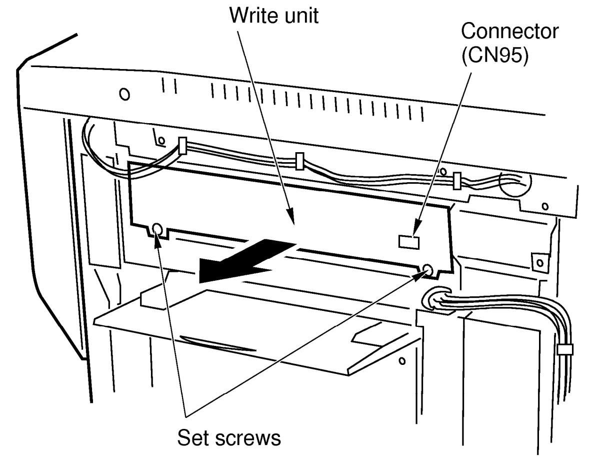

Set screw
Bypass-feed table
Set screw
Relay connector

(7) Remove the eight set screws, then remove the write unit cover.


Write unit cover
Set screws
Set screws
Set screw

(8) Disconnect the connector (CN95).

(9) Slacken the two set screws, then pull out the write unit.


Write unit
Connector (CN95)
Set screws

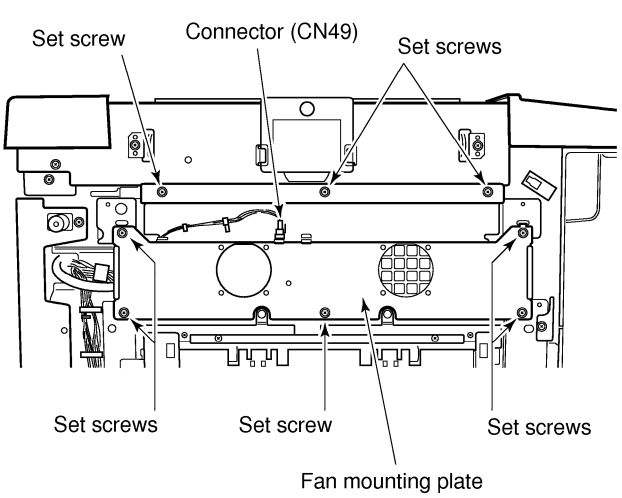
(10) Re-install the write unit in the opposite sequence to removal.

2. Removing and Re-installing the Electronic RDH Board

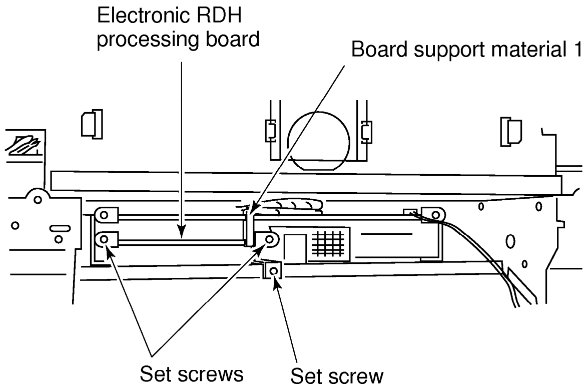
⚠Caution: Be sure that the power cord has been unplugged from the power outlet.

a. Procedure

(1) Remove the left side upper cover. (four set screws)
(2) Disconnect the connector (CN49).
(3) Remove the eight set screws, then remove the fan mounting plate.

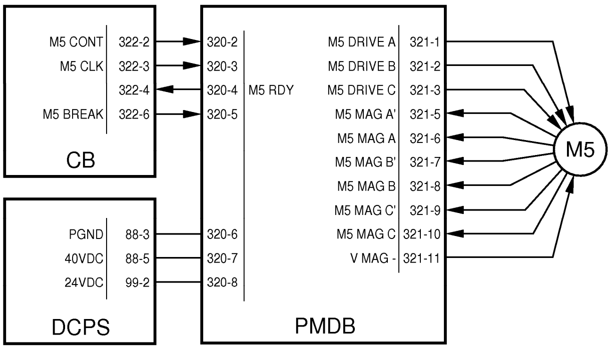

Set screw
Connector (CN49)
Set screws
Set screws
Set screw
Set screws
Fan mounting plate

(4) Remove the set screw, then remove the board support material 1.
(5) Remove the two set screws, then pull out the Electronic RDH processing board.


Electronic RDH processing board
Board support material 1
Set screws
Set screw

(6) Re-install the electronic RDH board in the opposite sequence to removal.

[4] M5 (polygon) Control


M5 CONT
322-2
M5 CLK
322-3
322-4
M5 BREAK
322-6
CB
PGND
88-3
40VDC
88-5
24VDC
99-2
DCPS
320-2
320-3
320-4
M5 RDY
320-5
320-6
320-7
320-8
M5 DRIVE A
321-1
M5 DRIVE B
321-2
M5 DRIVE C
321-3
M5 MAG A'
321-5
M5 MAG A
321-6
M5 MAG B'
321-7
M5 MAG B
321-8
M5 MAG C'
321-9
M5 MAG C
321-10
V MAG -
321-11
PMDB
M5

M5 (polygon) is driven by the PMDB (polygon driver board), and is controlled by the CB (control board).

1. Operation

a. M5 is a 3-phase brushless DC motor which is driven using a 3-phase bipolar method. The current flowing through the windings is switched according to the position of the rotor which is detected by a sensor (magnetic sensor) inside the motor.
This motor rotates the polygon mirror, causing the laser beams from LDB1 and 2 (laser driver boards 1 and 2) to be scanned in the axial direction of the drum. The speed of the motor is maintained constant by PLL control.

b. M5 is powered by 40 VDC. The rotational speed is as follows.

State of the machine	Rotational speed
During copy	High speed (21,850 rpm)
During idling	One of the following four speeds can be selected using the "25" mode. • 21,850 rpm * • 14,000 rpm * • 11,024 rpm * • 8,000 rpm * • Stop *

* If the item marked * is selected, the rotational speed of M5 switches over after the lapse of the specified time from the end of the copy process or warm up completion. The specified time can be selected using the "25" mode from the selection below.
(15 sec, 30 sec, 60 sec, 120 sec)

2. Signals

a. CB output signals

(1) M5 CONT (CB → PMDB)
This signal controls the ON/OFF state of M5.
L: M5 ON
H: M5 OFF

(2) M5 CLK (CB → PMDB)
This is a reference clock signal for PLL-controlling M5 in the PMDB.

(3) M5 BREAK (CB → PMDB)
Signal which brakes M5
L: Brake OFF
H: Brake ON

b. CB input signal

(1) M5 RDY (PMDB → CB)
This signal indicates the rotation condition of M5.
L: Specified rotational speed
H: If the specified speed has not been reached

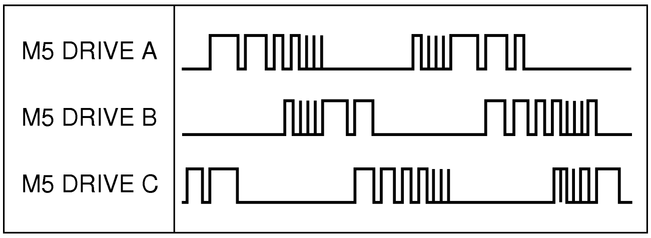
c. PMDB input signals

(1) M5 MAG A/A' (M5 → PMDB)
M5 MAG B/B' (M5 → PMDB)
M5 MAG C/C' (M5 → PMDB)
These are output signals from the position sensors (magnetic sensors) contained in M5. The PMDB detects the position of the rotor of the motor by means of these signals, and switches over the M5 DRIVE A to C output.

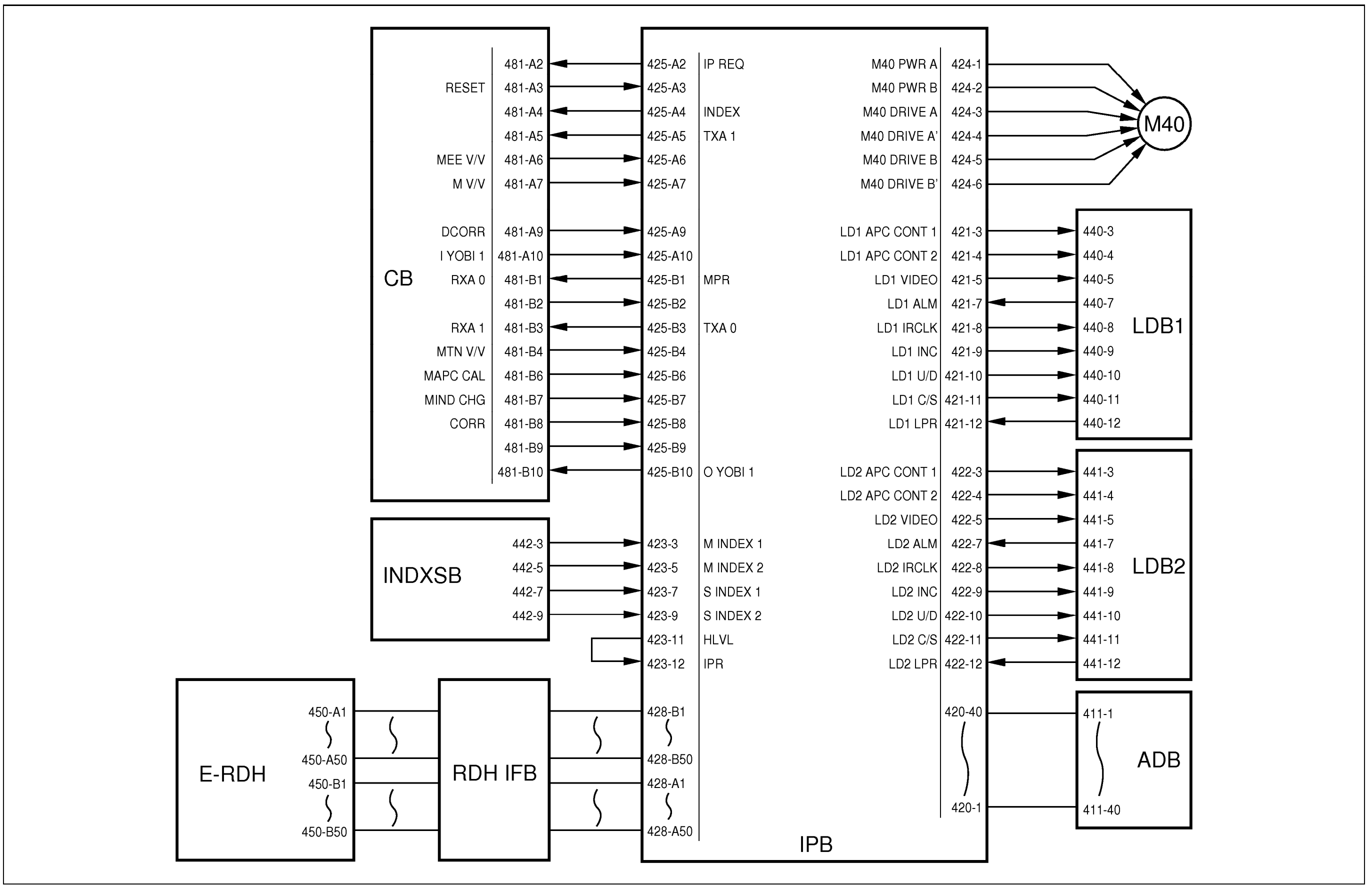
d. PMDB output signals

(1) V MAG- (PMDB → M5)
GND line to the rotor position sensors (magnetic sensors) contained in M5

(2) M5 DRIVE A to C (PMDB → M5)
This is the drive output signal for M5. While M5 is rotating, voltages are output sequentially from M5 DRIVE A to C, and applied to M5.
The voltage from each output that is applied to M5 consists of the pulses shown below. The pulse width of this output changes according to the rotation condition of M5, as shown in the figure, and as a result the RMS value of the voltage applied to M5 changes, causing the speed to be regulated.



[5] Image Write Control


CB
RESET
MEE V/V
M V/V
DCORR
I YOBI 1
RXA 0
RXA 1
MTN V/V
MAPC CAL
MIND CHG
CORR
481-A2
481-A3
481-A4
481-A5
481-A6
481-A7
481-A9
481-A10
481-B1
481-B2
481-B3
481-B4
481-B6
481-B7
481-B8
481-B9
481-B10
INDXSB
442-3
442-5
442-7
442-9
E-RDH
450-A1
450-A50
450-B1
450-B50
RDH IFB
IPB
425-A2
425-A3
425-A4
425-A5
425-A6
425-A7
425-A9
425-A10
425-B1
425-B2
425-B3
425-B4
425-B6
425-B7
425-B8
425-B9
425-B10
IP REQ
INDEX
TXA 1
MPR
TXA 0
O YOBI 1
423-3
423-5
423-7
423-9
423-11
423-12
M INDEX 1
M INDEX 2
S INDEX 1
S INDEX 2
HLVL
IPR
428-B1
428-B50
428-A1
428-A50
M40 PWR A
M40 PWR B
M40 DRIVE A
M40 DRIVE A'
M40 DRIVE B
M40 DRIVE B'
424-1
424-2
424-3
424-4
424-5
424-6
M40
LD1 APC CONT 1
LD1 APC CONT 2
LD1 VIDEO
LD1 ALM
LD1 IRCLK
LD1 INC
LD1 U/D
LD1 C/S
LD1 LPR
421-3
421-4
421-5
421-7
421-8
421-9
421-10
421-11
421-12
440-3
440-4
440-5
440-7
440-8
440-9
440-10
440-11
440-12
LDB1
LD2 APC CONT 1
LD2 APC CONT 2
LD2 VIDEO
LD2 ALM
LD2 IRCLK
LD2 INC
LD2 U/D
LD2 C/S
LD2 LPR
422-3
422-4
422-5
422-7
422-8
422-9
422-10
422-11
422-12
441-3
441-4
441-5
441-7
441-8
441-9
441-10
441-11
441-12
LDB2
420-40
420-1
411-1
411-40
ADB

The analog image data from the CCD sensor is A/D-converted by the ADB (A/D converter board), then sent to the IPB (image processing board) where it is data-processed. The processed image data is converted into laser beam and applied to the drum with the control signals from the CB (control board). There are two lasers which are used to write two lines of image data in a single scan. The write start position of each laser is detected by the INDXSB (index sensor board). The E-RDH (Electronic RDH board) can store digitized image data. Various editing functions can be carried out based on this data.

1. Operation

a. Image processing

The following processing is done by the IPB (image processing board).

(1) Shading correction

<Implementation timing>

- When the machine is switched ON
- At 500 copies
- At 1000 copies
- Every 5000 copies

(2) Brightness/density conversion

(3) EE processing

(4) Text/dot pattern judgement

(5) Filtering

(6) Magnification change processing

(7) Copy γ correction

(8) Write density control

The following processing is performed by the E-RDH (electronic RDH processing board).

a) Error diffusion processing

b) Data compression

The write operation takes place under instructions from the CB after the above processing has been completed.

b. Write

The IPB (image processing board) sends image data one pixel at a time to LDB1 and LDB2 in accordance with control signals from the CB (control board).

LDB1 and LDB2 cause the lasers to emit at a time period corresponding to the image data. This laser light is applied to the drum.

(1) APC (automatic adjustment of laser beam intensity)

The CB monitors the laser drive current at fixed intervals, and maintains the light intensity at the correct value.

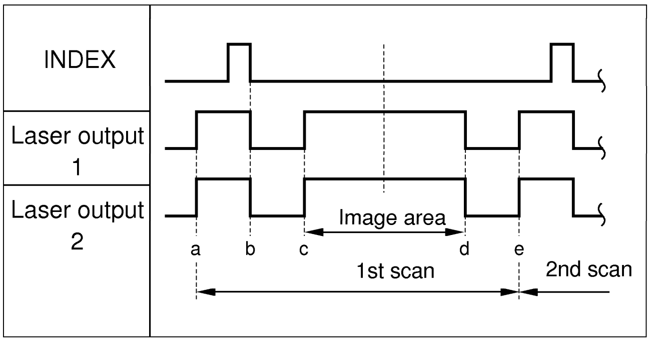
APC takes place at the following timing.

a) Before Dmax/gradation correction
b) When the Start button is pressed
c) After each two copies during a continuous copy operation
d) When the front door is opened and closed.

(2) Write Timing

a) Axial direction of drum

In this machine, the INDEX signal from INDXSB determines the laser write start timing for each scan in the axial direction of the drum.



Symbol	Description
a	When laser goes ON during 1st scan
b	When index sensor goes ON
b–c	The timing at left is controlled by counting the LD1 IRCLK and LD2 IRCLK signals. It differs depending upon the paper size.
c–d	
d–e	

b) Direction of rotation of drum

When data is output from the E-RDH memory

When the copy paper reaches the specified position

- * In the case of paper feed from the tray, LCT or ADU:
  After the specified period from when PS18 (no feed) goes ON
- * In the case of by-pass paper feed:
  After the specified period from the start of by-pass paper feed

(3) Laser beam position correction

a) Axial direction of drum

The index sensor detects the deviation of the positions of the 2 beams. This error is corrected by changing the timing of the light emission from the laser.

b) Direction of rotation of drum

The index sensor detects the deviation of the positions of the 2 beams, and M40 (laser correction) changes the angle of the fine adjustment prism of laser LD1, thus adjusting the beam in the up-down direction.

2. Signals

a. CB output signals

(1) MEE V/V (CB → IPB)
This signal determines the scanning area in the sub scanning direction during the pre-scanning operation (EE control). The period during which this signal is [L] is judged as the scanning area.

(2) M V/V (CB → IPB)
This signal determines the scanning area in the sub scanning direction during the exposure scan. The period over which this signal is [L] is judged as the scanning range.

(3) DCORR (CB → IPB)
Black data collection trigger signal used when shading correction is taking place.

(4) I YOBI 1 (CB → IPB)
Spare input port

(5) RXA 0, 1 (CB → IPB)
Data that is transferred serially from the CB to the IPB

(6) MTN V/V (CB → IPB)
This signal determines the patch output area in the sub scanning direction while Dmax is being measured. The period during which this signal is [L] is judged as the patch output area.

(7) MAPC CAL (CB → IPB)
APC and PWM calibration trigger signal

(8) MIND CHG (CB → IPB)
This signal selects the index signal.
[H]: External index signal
[L]: Internal index signal

(9) CORR (CB → IPB)
White data collection trigger signal used when shading correction is taking place

(10) RESET (CB → IPB)
Processing CPU reset signal (not used)

b. CB input signals

(1) IP REQ (IPB → CB)
Processing board communications enable signal

(2) INDEX (IPB → CB)
Write system index signal

(3) TXA 0, 1 (IPB → CB)
Data that is transferred serially from the IPB to the CB

(4) MPR (IPB → CB)
Image processing board power supply monitoring signal (connector check)

(5) O YOBI 1 (IPB → CB)
Spare output port

c. IPB output signals

(1) M40 PWR A (IPB → M40)
M40 A phase drive signal

(2) M40 PWR B (IPB → M40)
M40 B phase drive signal

(3) M40 DRIVE A/A' (IPB → M40)
M40 A phase drive pulse signal

(4) M40 DRIVE B/B' (IPB → M40)
M40 B phase drive pulse signal

(5) LD1 APC CONT 1, 2 (IPB → LDB1)
APC (laser light intensity automatic adjustment) of LD1 takes place according to the combination of these two signals.

(6) LD1 VIDEO (IPB → LDB1)
LD1 laser image data signal

(7) LD1 IRCLK (IPB → LDB1)
LD1 APC clock signal

(8) LD1 INC (IPB → LDB1)
LD1 MPC signal

(9) LD1 U/D (IPB → LDB1)
LD1 MPC signal

(10) LD1 C/S (IPB → LDB1)
LD1 MPC signal

(11) LD2 APC CONT 1, 2 (IPB → LDB2)
APC (laser light intensity automatic adjustment) of LD2 takes place according to the combination of these two signals.

(12) LD2 VIDEO (IPB → LDB2)
LD2 laser image data signal

(13) LD2 IRCLK (IPB → LDB2)
LD2 APC clock signal

(14) LD2 INC (IPB → LDB2)
LD2 MPC signal

(15) LD2 U/D (IPB → LDB2)
LD2 MPC signal

(16) LD2 C/S (IPB → LDB2)
LD2 MPC signal

(17) HLVL (IPB → INDXSB)
5 VDC for monitoring power supply

d. IPB input signals

(1) LD1 ALM (LDB1 → IPB)
Signal which indicates an abnormality in the laser drive current
[H]: Normal
[L]: Abnormal

(2) LD2 ALM (LDB2 → IPB)
Signal which indicates an abnormality in the laser drive current
[H]: Normal
[L]: Abnormal

(3) M INDEX 1, 2 (INDXSB → IPB)
Index signal for detection of main scanning deviation

(4) S INDEX 1, 2 (INDXSB → IPB)
Index signal for detection of sub scanning deviation

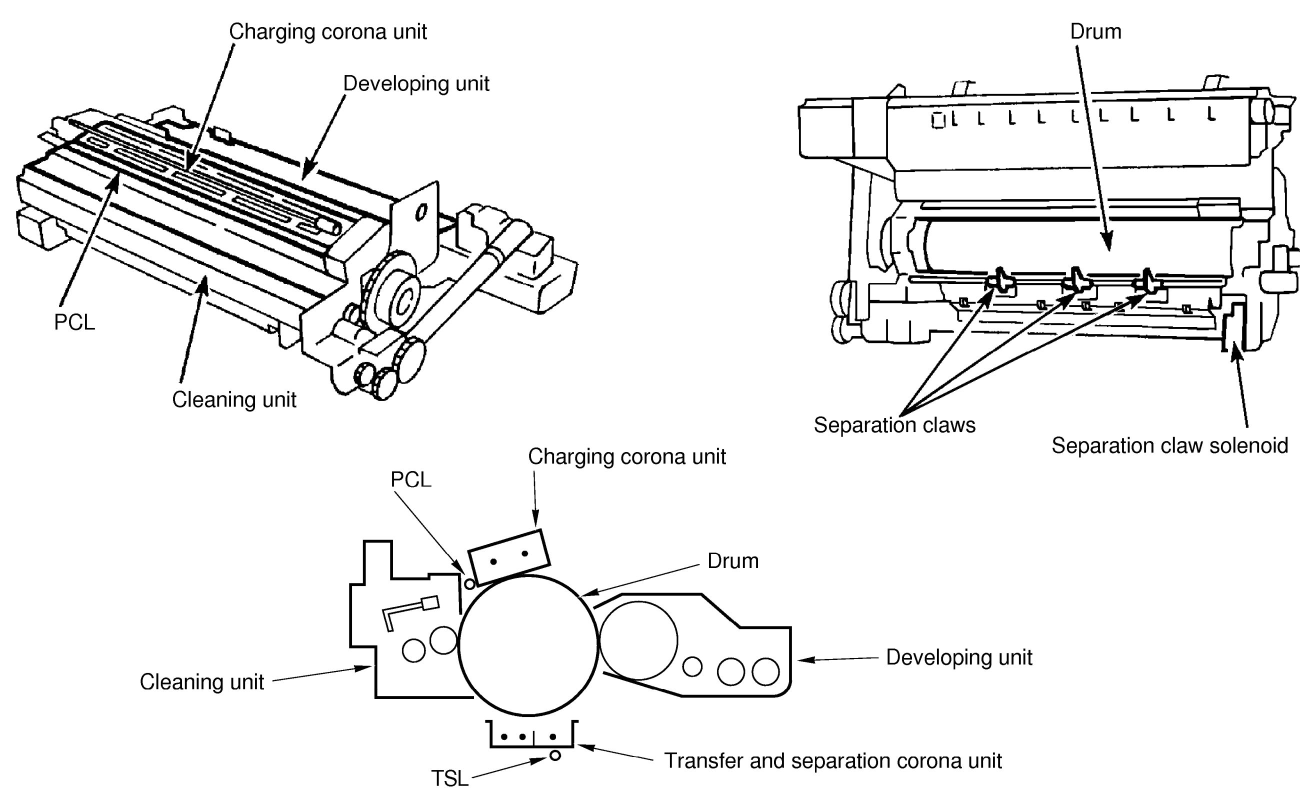
(5) IPR (INDXSB → IPB)
INDXSB power supply monitoring signal (connector check)
[H]: Normal
[L]: Abnormal

(6) LD1 LPR (LDB1 → IPB)
LD1 power supply monitoring signal (connector check)
[H]: Normal
[L]: Abnormal

(7) LD2 LPR (LDB2 → IPB)
LD2 power supply monitoring signal (connector check)
[H]: Normal
[L]: Abnormal

DRUM UNIT

[1] Composition


Charging corona unit
Developing unit
PCL
Cleaning unit
Drum
Separation claws
Separation claw solenoid
Charging corona unit
PCL
Drum
Developing unit
Cleaning unit
Transfer and separation corona unit
TSL

[2] Mechanisms

	Mechanism	Method
	Carriage supply	Fixed rail
	PCL	LED
*1	Auxiliary separation	Separation claws
*2	Conveyance auxiliary	Ratchet wheel

The drum unit of this machine is an integral assembly consisting of the drum, charging corona unit, developing unit, cleaning unit, toner recycle unit and the PCL which are installed around the drum.

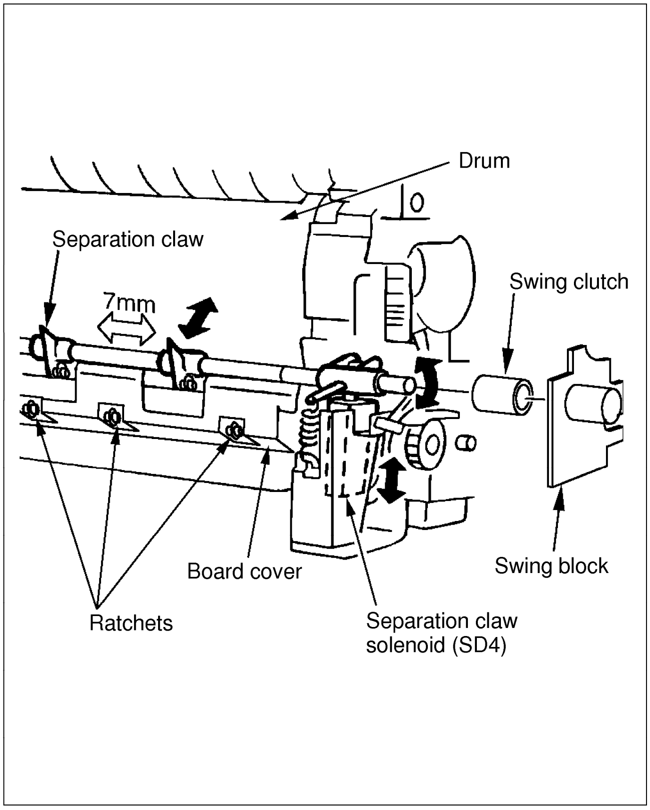
***1: Auxiliary separation**

Three separation claws separate the paper from the drum and prevent paper jamming. These claws are operated via the claw operation lever by the ON/OFF operation of the separation claw solenoid (SD4).

Also, while the swing clutch installed in the swing block is turning one revolution, the separation claws slide about 7 mm, preventing a specific part of the paper from becoming dirty and also preventing the drum from being scratched.

***2: Ratchets**

The thick paper conveyance ability has been improved by the use of five ratchets on the board cover.


Drum
Separation claw
7mm
Swing clutch
Board cover
Swing block
Ratchets
Separation claw solenoid (SD4)

[3] Disassembly and Re-assembly

1. Removing and Re-installing the Drum Unit

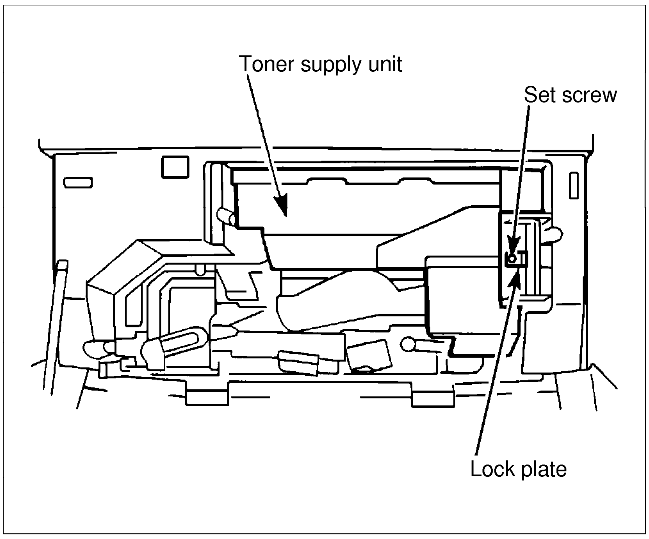
⚠Caution: Be sure that the power cord has been unplugged from the power outlet.

Caution:

1. When pulling out the drum unit, be sure to place the drum cover over it and store the drum carriage in a dark place.
2. Be careful not to rotate the drum when installing or removing the drum unit. If you rotate the drum in the direction opposite to the direction in which it rotates during a copy operation, you risk damaging the cleaning blade.
3. Do not touch the separation claw when installing or removing the drum unit.

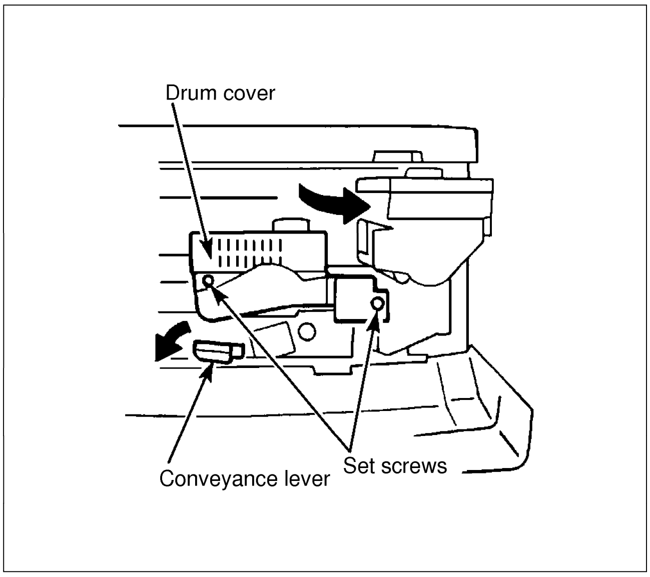
a. Procedure

(1) Open the front door, slacken the set screw, release the lock plate of the toner supply unit, then pull forward the toner supply unit.


Toner supply unit
Set screw
Lock plate

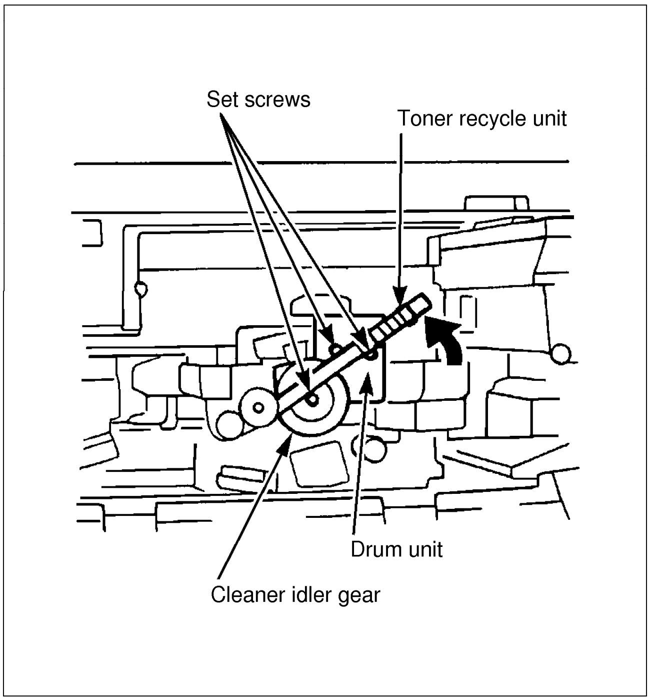
(2) Release the conveyance lever.

(3) Remove the two set screws, then remove the drum cover.


Drum cover
Conveyance lever
Set screws

(4) Remove the three set screws, then slowly pull the drum unit forward. (Raise the toner recycle unit, then remove the set screw at the center of the drum.)

Caution: There is a possibility of the drum rotating in reverse, so retain the cleaner idler gear to prevent the drum from rotating.


Set screws
Toner recycle unit
Drum unit
Cleaner idler gear

(5) Re-install the drum unit in the opposite sequence to removal.

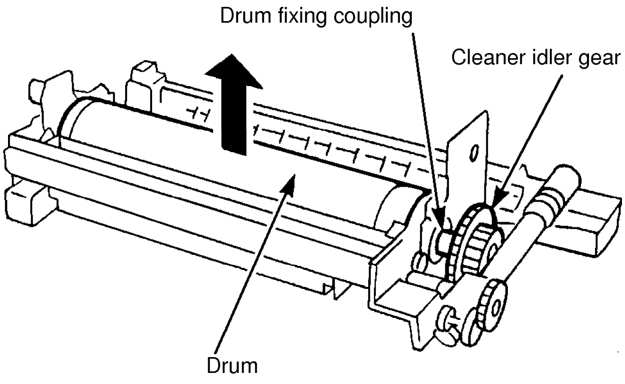
2. Removing and Re-installing the Drum

Caution:

1. Be careful not to touch the drum or the cleaning blade with bare hands, or damage these parts.
2. When leaving the drum to stand, be sure to place the drum cover over it and store it in a dark place.
3. When re-installing the drum, cleaning blade and guide roller, apply setting powder to the entire surface of the drum and also to the cleaning blade regardless of whether or not the parts are new or old. In addition, apply toner to both ends of the cleaning blade.
4. After applying setting powder to the drum, carry out the following work before installing the drum unit on the main body.
    1) To ensure that the toner density is correct, before installing the drum to the drum unit, discharge the surface of γ detection sensor and the Dmax sensor on the control board by using a piece of cloth moistened with alcohol, thus preventing toner from adhering to the sensors.
    2) With the charging corona unit and the developing unit removed, insert the centering jigs into both sides of the drum, then turn the drum one revolution. This prevents setting powder from scattering onto the charging corona unit, and other parts, and also prevents image defects.
5. When installing the drum, be careful of the orientation of the drum. The end of the drum with the wider non-image area is the front.
6. When installing a new drum, be sure to enter code 091 of the 47 mode and reset the process counter (drum counter). (For details, refer to "Adjustment section".)

a. Procedure

(1) Remove the drum unit from the main body.
(2) Remove the charging corona unit, developing unit and cleaning blade from the drum unit. (For the sequence of removing these parts, refer to "Charging corona unit, Developing unit and cleaning/recycle unit section".)
(3) Remove the cleaner idler gear and the drum fixing coupling.
(4) Gently lift out the drum while holding it at both ends to ensure that you do not damage the photosensitive surface.



(5) Re-install the drum in the opposite sequence to removal.

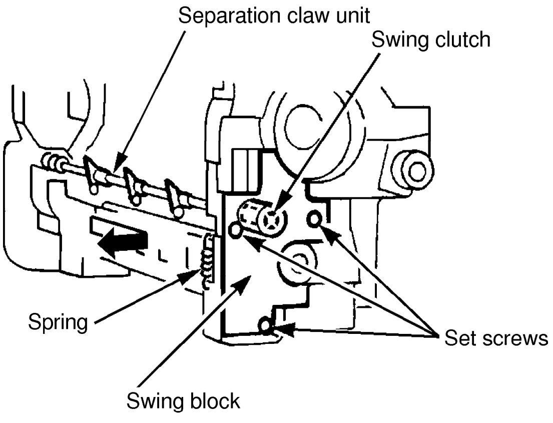
3. Removing and Re-installing the Separation Claws

Caution:

1. Take care not to damage the drum when removing the separation claws.
2. Be careful of the direction and position of the separation claws when re-installing the claws.
3. Do not touch the cleaning blade or the drum with the bare hands.

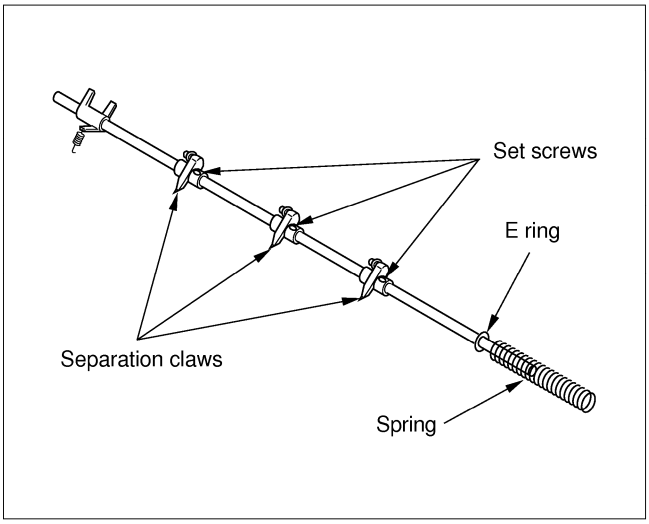
a. Procedure

(1) Remove the drum unit from the main body.
(2) Remove the drum from the drum unit.
(3) Remove the spring.
(4) Remove the three set screws, then remove the swing block and swing clutch.
(5) Remove the separation claw unit.



(6) Remove the spring and the E ring from the separation claw unit.

(7) Remove the three set screws of the claws (one screw each), then remove the three claws.


Set screws
E ring
Separation claws
Spring

(8) Re-install the separation claws in the opposite sequence to removal.

4. Removing and Re-installing the Separation Claw Solenoid Press-fit Ass'y

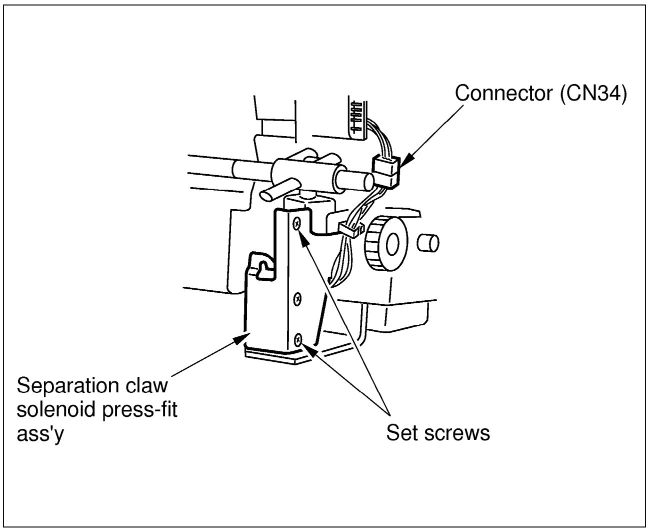
a. Procedure

(1) Remove the drum unit from the main body.

(2) Remove the drum and separation claw unit from the drum unit.

(3) Disconnect the connector (CN34).

(4) Remove the two set screws, then remove the separation claw solenoid press-fit ass'y.


Connector (CN34)
Separation claw solenoid press-fit ass'y
Set screws

(5) Re-install the separation claw solenoid press-fit ass'y in the opposite sequence to removal.

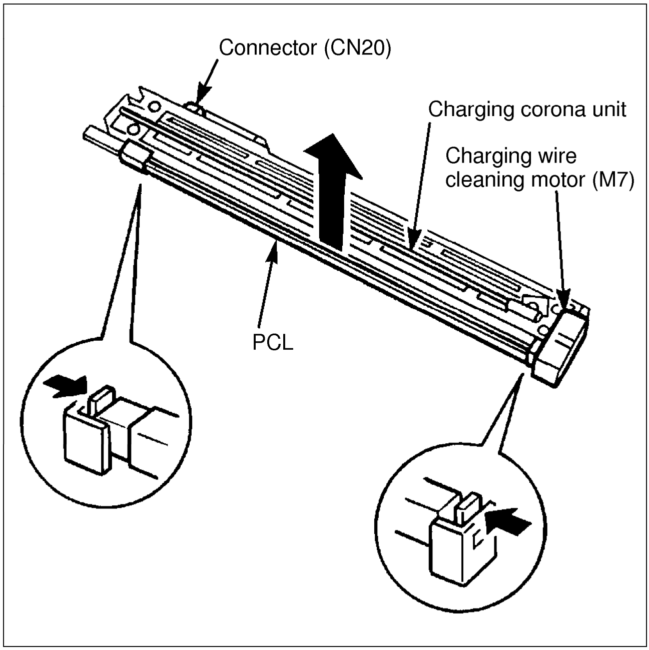
5. Removing and Re-installing the PCL

a. Procedure

(1) Remove the charging corona unit. (Refer to "Corona unit section" for the method of removing the PCL.)

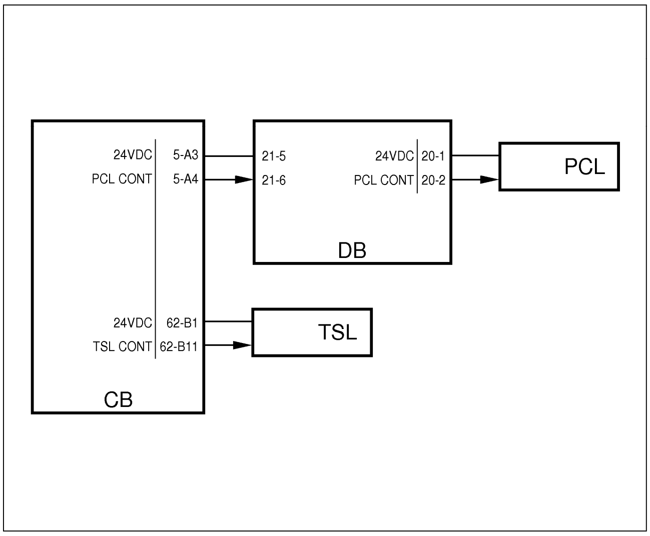
(2) Disconnect the connector (CN20) from the drum board.

(3) Push the front and rear hooks of the PCL cover inward, then lift out the PCL.


Connector (CN20)
Charging corona unit
Charging wire cleaning motor (M7)
PCL

(4) Re-install the PCL in the opposite sequence to removal.

[4] PCL/TSL Control


24VDC
PCL CONT
5-A3
5-A4
21-5
21-6
24VDC
PCL CONT
20-1
20-2
PCL
DB
24VDC
TSL CONT
62-B1
62-B11
TSL
CB

The PCL (precharging exposure lamp) and TSL (transfer synchronization exposure lamp) consist of LEDs which are controlled by the CB (control board).

1. Operation

PCL goes ON and OFF in synchronism with M1 (main), and TSL goes ON and OFF in synchronism with M4 (drum).

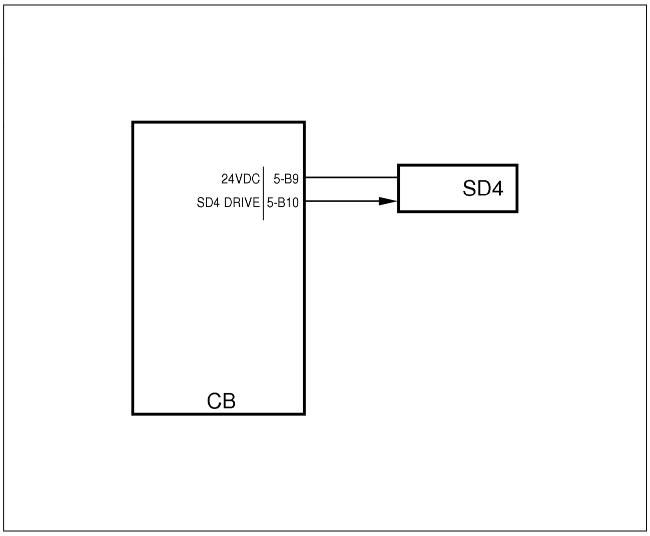
2. Signals

a. Output signals

(1) PCL CONT (CB → DB → PCL)
PCL ON/OFF control signal
[L]: PCL ON
[H]: PCL OFF

(2) TSL CONT (CB → TSL)
TSL ON/OFF control signal
[L]: TSL ON
[H]: TSL OFF

[5] Separation Claw Control


24VDC
SD4 DRIVE
5-B9
5-B10
SD4
CB

The separation claws are operated by SD4 (separation claws), and are controlled by the CB (control board).

1. Operation

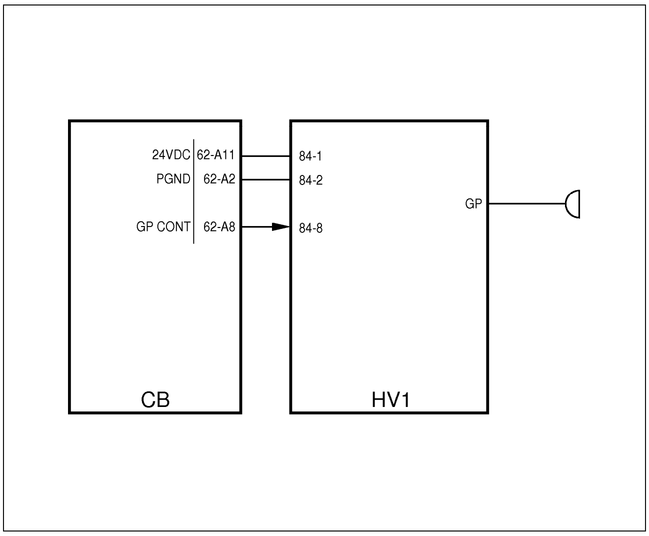
During the separation discharge, SD4 goes ON, causing the separation claws to touch the drum in order to help separate the paper from the drum.

2. Signal

a. Output signal

(1) SD4 DRIVE (CB → SD4)
SD4 drive control signal
[L]: SD4 ON
[H]: SD4 OFF

[6] Paper Guide Plate Control


24VDC
PGND
GP CONT
62-A11
62-A2
62-A8
84-1
84-2
84-8
GP
CB
HV1

A constant voltage is applied to the paper guide plate in order to prevent toner from adhering to it.

1. Operation

a. ON/OFF timing

ON and OFF in synchronism with M4 (drum).

b. Applied voltage

-500 VDC

2. Signal

a. Output signal

(1) GP CONT (CB → HV1)

Controlling ON/OFF of the voltage applied to the paper guide plate

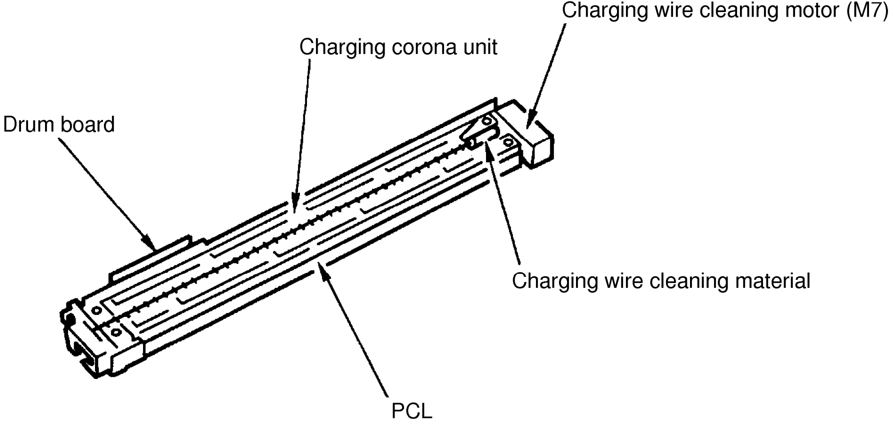
[L]: Voltage applied.

[H]: Voltage not applied.

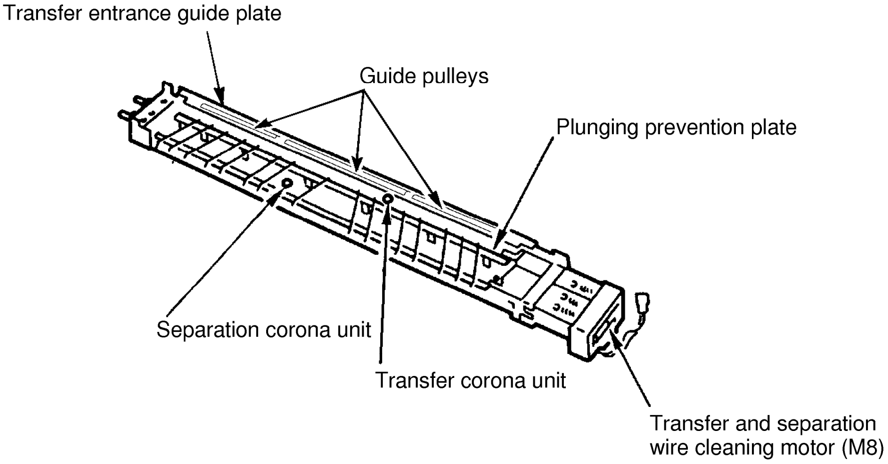
CORONA UNIT SECTION

[1] Composition

<Charging corona unit>


Charging wire cleaning motor (M7)
Charging corona unit
Drum board
Charging wire cleaning material
PCL

<Transfer and separation corona unit>

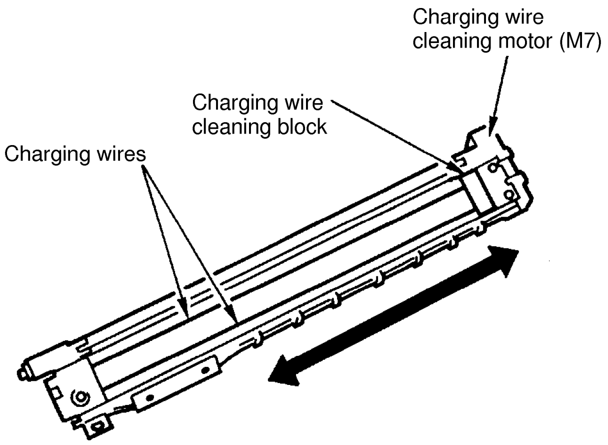

Transfer entrance guide plate
Guide pulleys
Plunging prevention plate
Separation corona unit
Transfer corona unit
Transfer and separation wire cleaning motor (M8)

[2] Mechanisms

	Mechanism	Method
*1	Charging	Scorotron (DC negative corona discharge) Discharge wire: Tungsten ø0.06 mm (gold-plated skin path) Grid control: Stainless steel plate With automatically wire grid cleaner
*2	Transfer	DC positive corona discharge Discharge wires: Tungsten ø0.06 mm With automatically wire cleaner
	Separation	AC/DC corona discharge Discharge wires: Tungsten ø0.06 mm With automatically wire cleaner

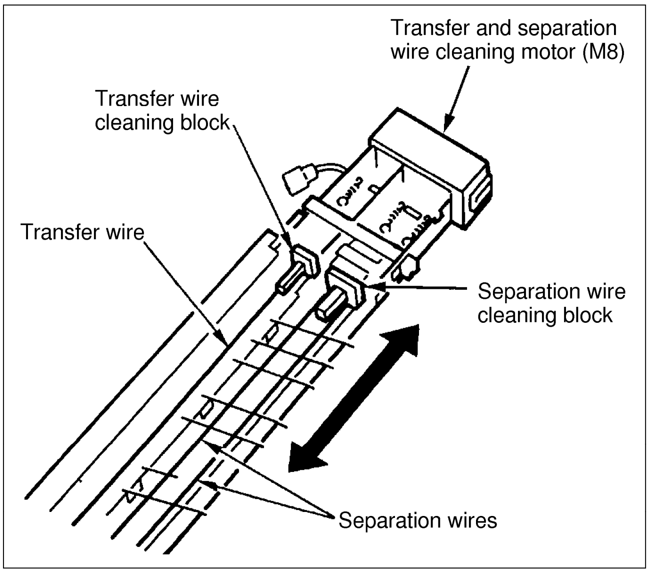
***1: Cleaning of the charging wires and grid**

The charging corona unit has a wire cleaner. The charging wire cleaning motor causes the charging wire cleaning block to move back and forth, removing dirt from the wires and grid.


Charging wire cleaning motor (M7)
Charging wire cleaning block
Charging wires

***2: Cleaning of the transfer and separation wires**

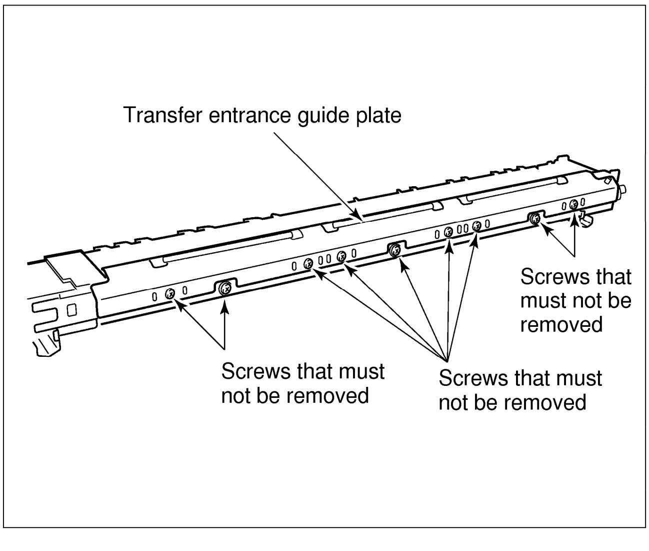
The transfer and separation corona unit has a wire cleaner. The transfer and separation wire cleaning motor causes the transfer and separation wire cleaning blocks to move back and forth, removing dirt from the wires.


Transfer and separation wire cleaning motor (M8)
Transfer wire cleaning block
Transfer wire
Separation wire cleaning block
Separation wires

[3] Disassembly and Re-assembly

1. Screws that must not be Removed

a. Nine set screws of the transfer enter guide plate


Transfer entrance guide plate
Screws that must not be removed
Screws that must not be removed
Screws that must not be removed

Caution:

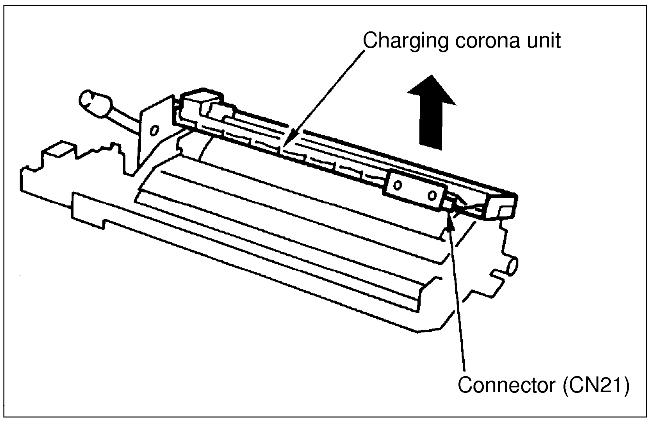
1. Be careful not to apply pressure on the transfer entrance guide plate and the guide pulley.
2. Be careful when handling the transfer entrance guide plate, as its leading edge deforms easily.

2. Removing and Re-installing the Charging Corona Unit

⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

a. Procedure

(1) Remove the drum unit from the main body.
(2) Disconnect the connector (CN21).
(3) Lift out the charging corona unit, then remove it.


Charging corona unit
Connector (CN21)

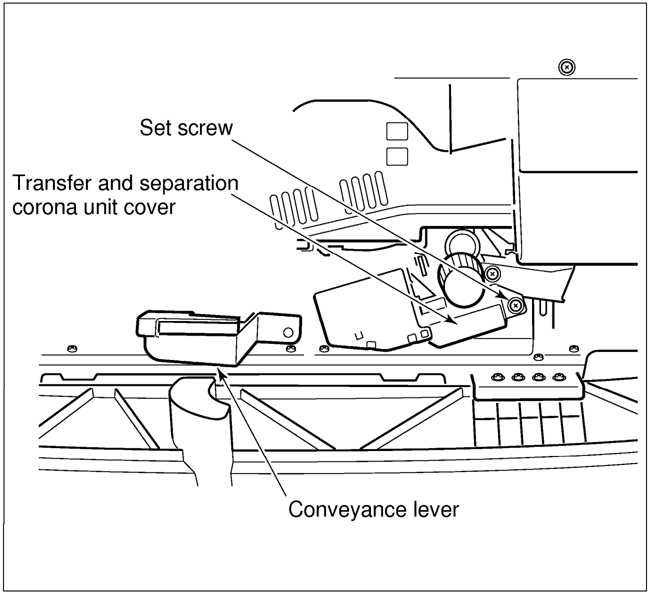
(4) Re-install the charging corona unit in the opposite sequence to removal.

3. Removing and Re-installing the Transfer and Separation Corona Unit

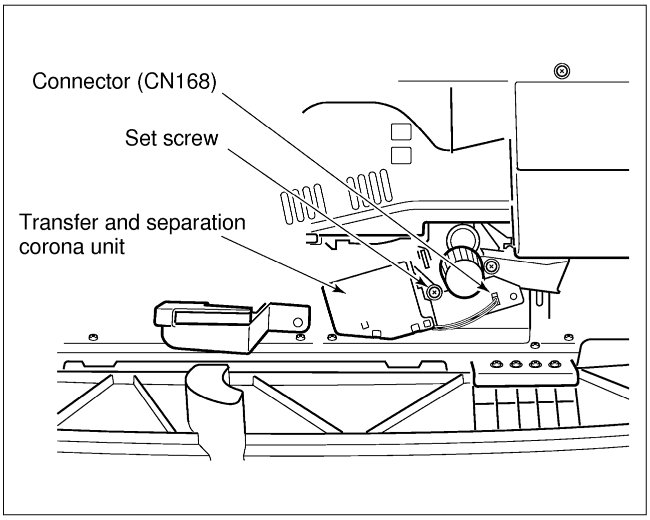
⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

a. Procedure

(1) Open the front door, and release the conveyance lever.
(2) Remove the set screw, then remove the transfer and separation corona unit cover.


Set screw
Transfer and separation corona unit cover
Conveyance lever

(3) Disconnect the connector (CN168).
(4) Slacken the set screw, then pull forward and remove the transfer and separation corona unit.

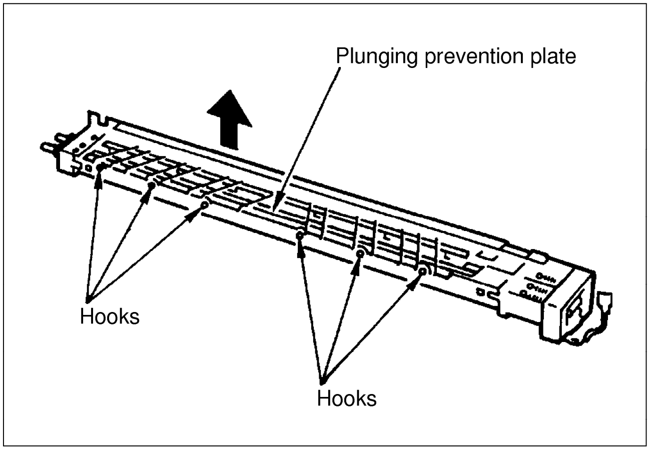

Connector (CN168)
Set screw
Transfer and separation corona unit

(5) Re-install the transfer and separation corona unit in the opposite sequence to removal.

4. Removing and Re-installing the Plunging Prevention Plate

a. Procedure

(1) Remove the transfer and separation corona unit
(2) Push in the six hooks at the rear of the back plate while grasping them with a pair of tweezers, and remove the plunging prevention plate.

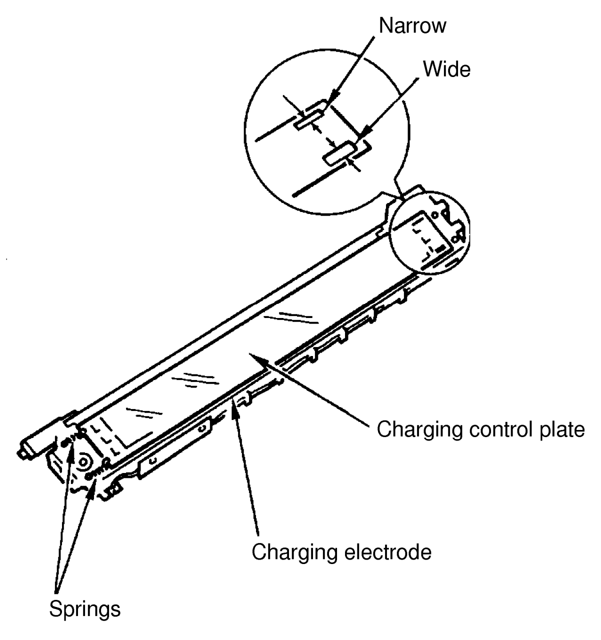

Plunging prevention plate
Hooks
Hooks

(3) Re-install the plunging prevention plate in the opposite sequence to removal.

5. Cleaning the Charging Control Plate

a. Procedure

(1) Remove the charging electrode.
(2) Remove the two springs, then slide the charging control plate toward the charging wire cleaning motor and remove it.

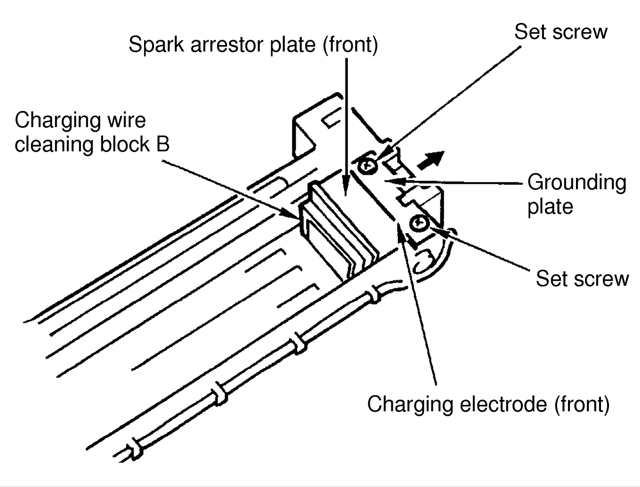

Narrow
Wide
Charging control plate
Charging electrode
Springs

(3) Remove dirt from the charging control plate by first using a blower brush then gently dabbing it with a piece of cloth moistened with drum cleaner.
(4) Re-install the charging control plate in the opposite sequence to removal.

6. Replacing Charging Wire Cleaning Block B

a. Procedure

(1) Remove the charging corona unit.
(2) Remove the charging control plate.
(3) Remove the two set screws of the charging electrode (front).
(4) Remove the grounding plate in the direction of the arrow.
(5) Lift out and remove charging wire cleaning block B together with the spark arrestor plate (front).

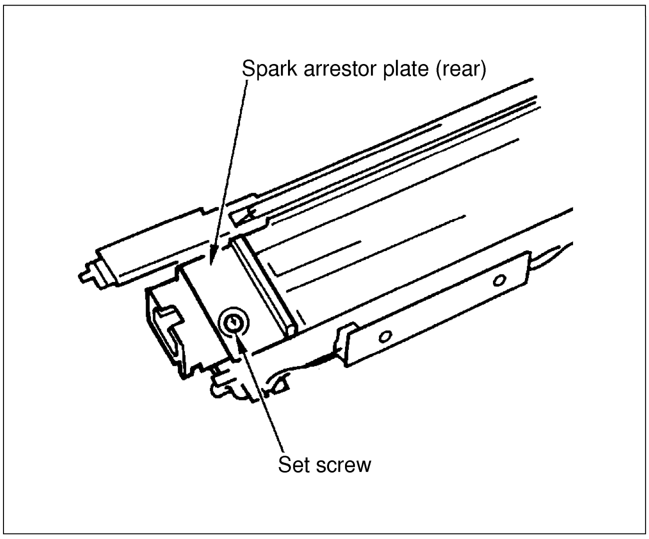

Spark arrestor plate (front)
Set screw
Charging wire cleaning block B
Grounding plate
Set screw
Charging electrode (front)

(6) Re-install charging wire cleaning block B in the opposite sequence to removal.

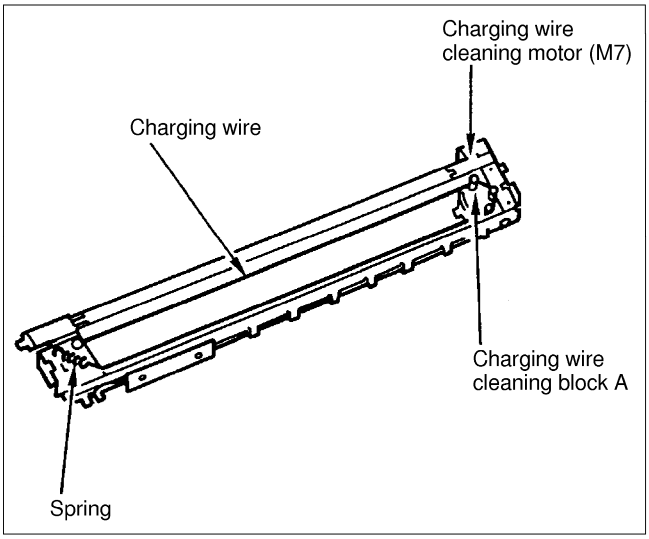
7. Replacing the Charging Wire

a. Procedure

(1) Remove the charging corona unit.
(2) Remove the charging control plate.
(3) Remove the charging wire cleaning block B.
(4) Remove the set screw, then remove the spark arrestor plate (rear).


Spark arrestor plate (rear)
Set screw

(5) Remove the spring, then remove the charging wires.

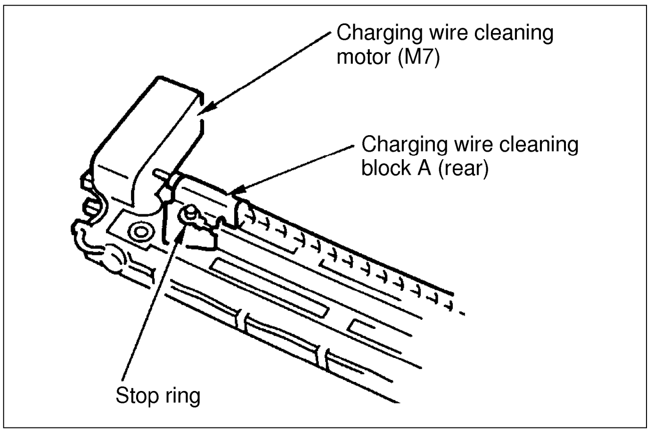

Charging wire cleaning motor (M7)
Charging wire
Charging wire cleaning block A
Spring

(6) Re-install the charging wires in the opposite sequence to removal.

8. Replacing Charging Wire Cleaning Block A

a. Procedure

(1) Remove the charging corona unit.
(2) Remove the charging control plate.
(3) Remove the charging wire cleaning block B.
(4) Remove the charging wires.
(5) Turn the charging corona unit upside down, then remove the stop ring, and remove the charging wire cleaning block A.

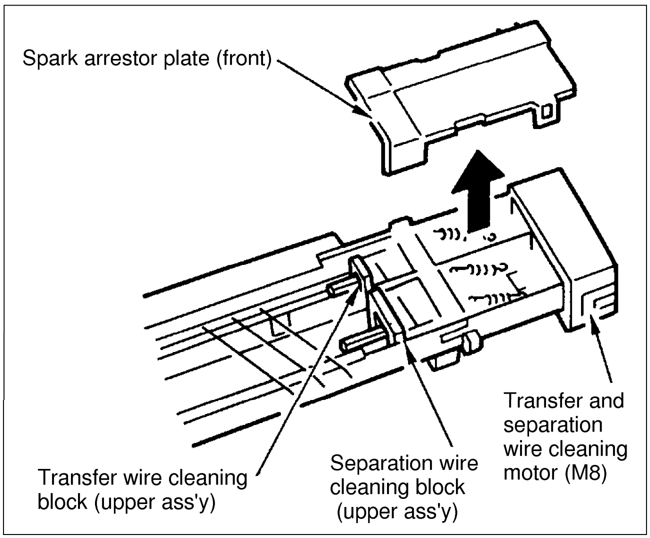

Charging wire cleaning motor (M7)
Charging wire cleaning block A (rear)
Stop ring

(6) Re-install charging wire cleaning block A in the opposite sequence to removal.

9. Replacing the Transfer and Separation Wire Cleaning Blocks (Upper Ass'y)

a. Procedure

(1) Remove the transfer and separation corona unit.
(2) Remove the spark arrestor plate (front).
(3) Lift out and remove the transfer wire cleaning block and separation wire cleaning block (upper ass'y).

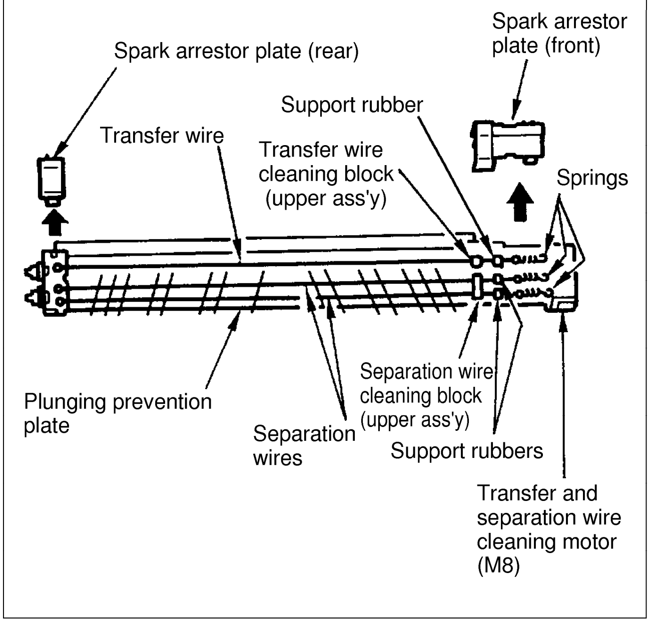

Spark arrestor plate (front)
Transfer and separation wire cleaning motor (M8)
Transfer wire cleaning block (upper ass'y)
Separation wire cleaning block (upper ass'y)

(4) Re-install the transfer and separation wire cleaning blocks in the opposite sequence to removal.

10. Replacing the Transfer and Separation Wires

a. Procedure

(1) Remove the transfer and separation corona unit.
(2) Remove the plunging prevention plate.
(3) Remove the spark arrestor plate (front).
(4) Remove the transfer wire cleaning block and the separation wire cleaning block (upper ass'y).
(5) Remove the spark arrestor plate (rear).
(6) Remove the spring from each wire, then remove each wire. Each wire comes away together with the support rubber.

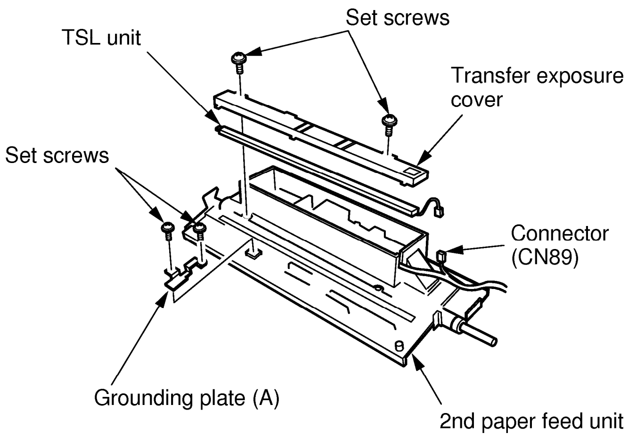

Spark arrestor plate (rear)
Spark arrestor plate (front)
Support rubber
Transfer wire
Transfer wire cleaning block (upper ass'y)
Springs
Plunging prevention plate
Separation wire cleaning block (upper ass'y)
Separation wires
Support rubbers
Transfer and separation wire cleaning motor (M8)

(7) Re-install the transfer and separation wires in the opposite sequence to removal.

11. Removing/Re-installing the TSL Unit

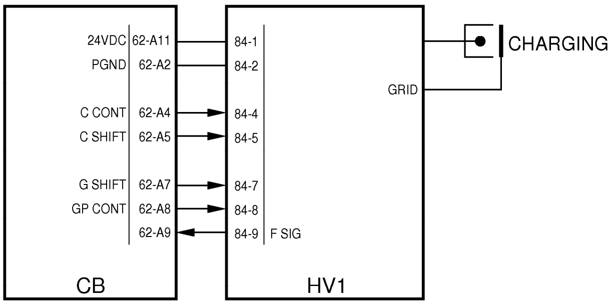
a. Procedure

(1) Remove the 2nd paper feed unit from the main body (Refer to the item on the paper feed section for the method of removing the 2nd paper feed unit).
(2) Disconnect the TSL connector, CN (89).
(3) Remove the lead wires behind the transfer exposure cover.
(4) Remove the two set screws, then remove the transfer exposure cover.
(5) Remove the two set screws, then remove grounding plate (A).
(6) Remove the TSL unit from the 2nd paper feed unit.


TSL unit
Set screws
Transfer exposure cover
Set screws
Connector (CN89)
Grounding plate (A)
2nd paper feed unit

(7) Re-install the TSL unit in the opposite sequence to removal.

[4] Charging Control


24VDC
PGND
C CONT
C SHIFT
G SHIFT
GP CONT
62-A11
62-A2
62-A4
62-A5
62-A7
62-A8
62-A9
84-1
84-2
84-4
84-5
84-7
84-8
84-9
F SIG
GRID
CHARGING
CB
HV1

HV1 (high voltage unit 1), which controls charging, operates by means of control signals from the CB (control board), and outputs a high voltage to the charging wires.

1. Operation

a. Charging

A Scorotron charging method is used. 24 VDC input from the CB is raised to a negative DC high voltage which is then discharged.

b. Grid voltage

The grid voltage is output from HV1 to the charging plate.

2. Signals

a. Input signal

(1) F SIG (HV1 → CB)
[L] is output when the spark detection circuit operates and forcibly turns OFF the charging output.

b. Output signals

(1) C CONT (CB → HV1)
Charging and grid voltage ON/OFF control signal
[L]: Charging and grid voltage ON
[H]: Charging and grid voltage OFF

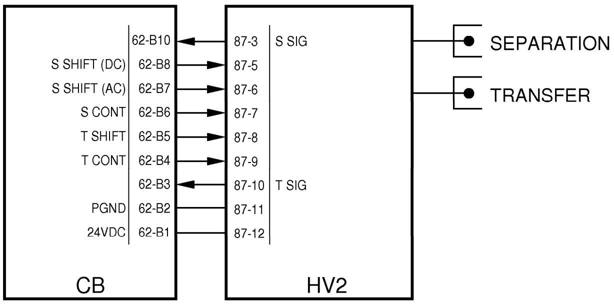
(2) C SHIFT (CB → HV1)
The charging corona unit output level is controlled by means of analog signals from the CB.

C SHIFT output range	4 to 10 V
Charging output range	-600 to -1500 µA

(3) G SHIFT (CB → HV1)
The charging grid voltage output level is controlled by analog signals from the CB.

G SHIFT output range	4 to 10 V
Grid voltage output range	-500 to -900 V

[5] Transfer/Separation Control


62-B10
S SHIFT (DC)
62-B8
S SHIFT (AC)
62-B7
S CONT
62-B6
T SHIFT
62-B5
T CONT
62-B4
62-B3
PGND
62-B2
24VDC
62-B1
CB
87-3
S SIG
87-5
87-6
87-7
87-8
87-9
87-10
T SIG
87-11
87-12
HV2
SEPARATION
TRANSFER

Transfer and separation is controlled by the CB (control board) and HV2 (high voltage unit 2).

1. Operation

a. Transfer

A positive DC high voltage is used for transfer.

b. Separation

An AC high voltage is used for separation.

2. Signals

a. Input signals

(1) T SIG (HV2 → CB)
[L] is output when the transfer spark detection circuit operates.

(2) S SIG (HV2 → CB)
[L] is output when the separation spark detection circuit operates.

b. Output signals

(1) T CONT (CB → HV2)
Signal which turns the transfer corona unit ON/OFF.
When this signal is [L], the transfer corona unit is ON.

(2) T SHIFT (CB → HV2)
Transfer corona unit output level control signal
This signal controls the transfer corona unit output level using analog signals from the CB.

T SHIFT output range	4 to 10 V
Transfer output range	50 to 600 μA

(3) S CONT (CB → HV2)
Separation corona unit ON/OFF control signal
When this signal is [L], the separation corona unit is ON.

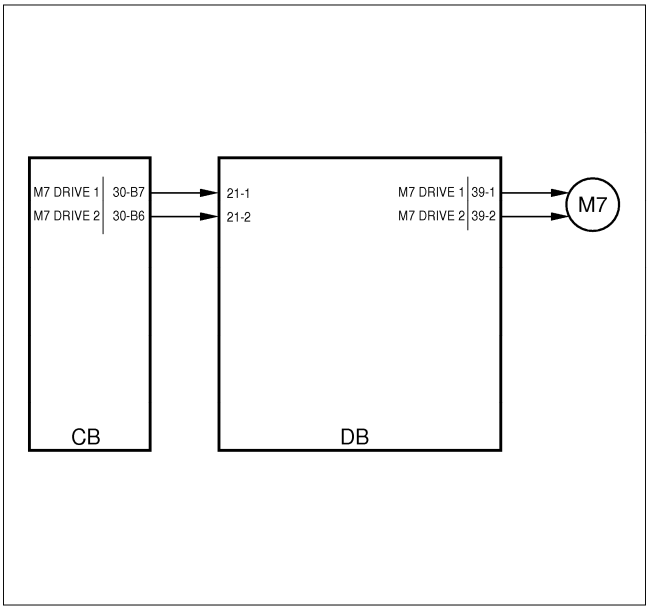
(4) S SHIFT (AC) (CB → HV2)
Separation corona unit output level control signal
This signal controls the separation corona unit output level (AC component) using analog signals from the CB.

S SHIFT (AC) output range	4 to 10 V
Separation AC voltage output range	4.0 to 5.7 kV

(5) S SHIFT (DC) (CB → HV2)
Separation corona unit output level control signal
This signal controls the separation corona unit output level (DC bias component) using analog signals from the CB.

S SHIFT (DC) output range	4 to 10 V
Separation DC bias voltage output range	0 to -400 μA

[6] M7 (charging wire cleaning) Control


M7 DRIVE 1
30-B7
M7 DRIVE 2
30-B6
21-1
21-2
M7 DRIVE 1
39-1
M7 DRIVE 2
39-2
M7
CB
DB

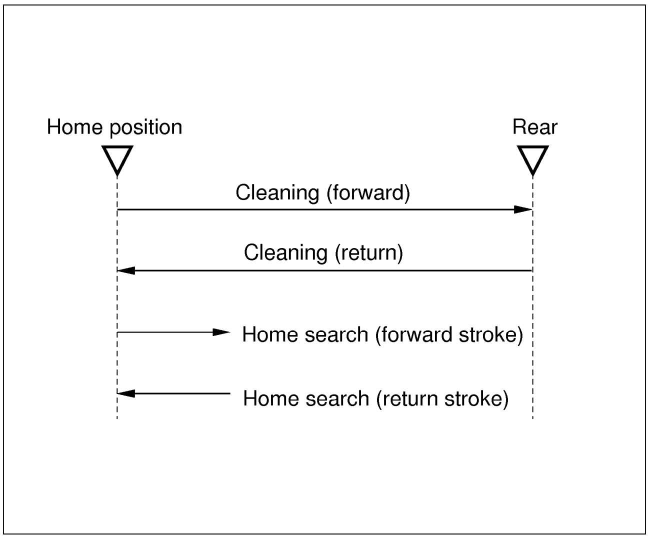
M7 (charging wire cleaning) is driven by the CB (control board) via the DB (drum board).

1. Operation

a. M7 is used to drive the charging wire cleaning unit. Also, the drive voltage of M7 is as follows.
   Drive voltage: 12 VDC

b. Cleaning of the charging wire takes place if the fixing temperature is less than 50°C when the main switch is turned ON.

c. Cleaning operation
   The home position of the cleaning unit is on the front side of the machine. The cleaning unit operates as follows.


Home position
Rear
Cleaning (forward)
Cleaning (return)
Home search (forward stroke)
Home search (return stroke)

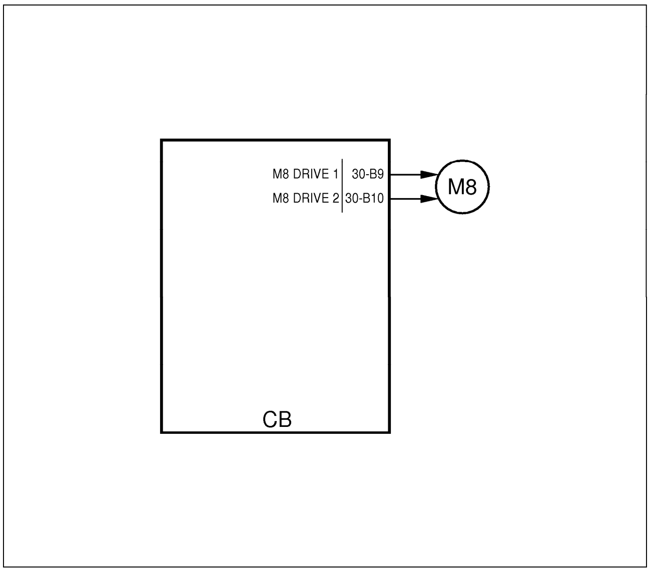
2. Signals

a. Output signals

(1) M7 DRIVE 1, 2 (CB → M7)
M7 drive signals
The drive direction of M7 is controlled by changing over the drive current direction of these two signals.

Status	M7 DRIVE 1	M7 DRIVE 2
Cleaning forward stroke	H	L
Cleaning return stroke	L	H
When stopped	L	L

[7] M8 (transfer/separation wire cleaning) Control


M8 DRIVE 1
30-B9
M8 DRIVE 2
30-B10
M8
CB

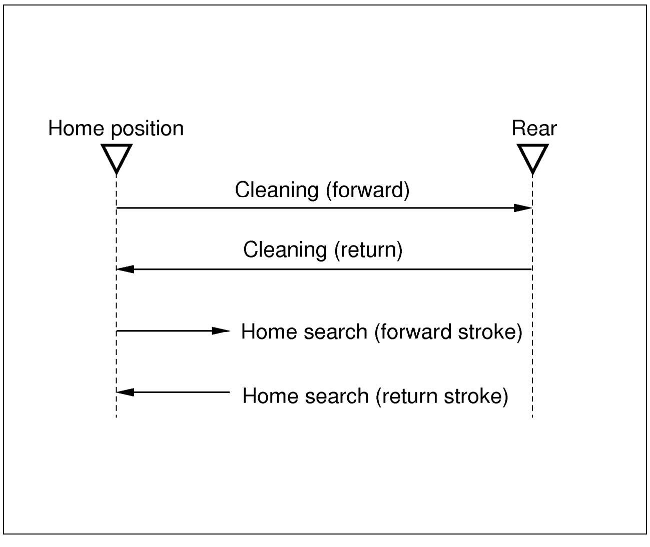
M8 (transfer/separation wire cleaning) is driven by the CB (control board).

1. Operation

a. M8 is used to drive the transfer/separation wire cleaning unit. The drive voltage of M8 is as follows.
   Drive voltage: 12 VDC

b. Cleaning of the transfer/separation wire takes place if the fixing temperature is less than 50°C when the main switch is turned ON.

c. Cleaning operation
   The home position of the cleaning unit is on the front side of the machine. The cleaning unit operates as follows.


Home position
Rear
Cleaning (forward)
Cleaning (return)
Home search (forward stroke)
Home search (return stroke)

2. Signals

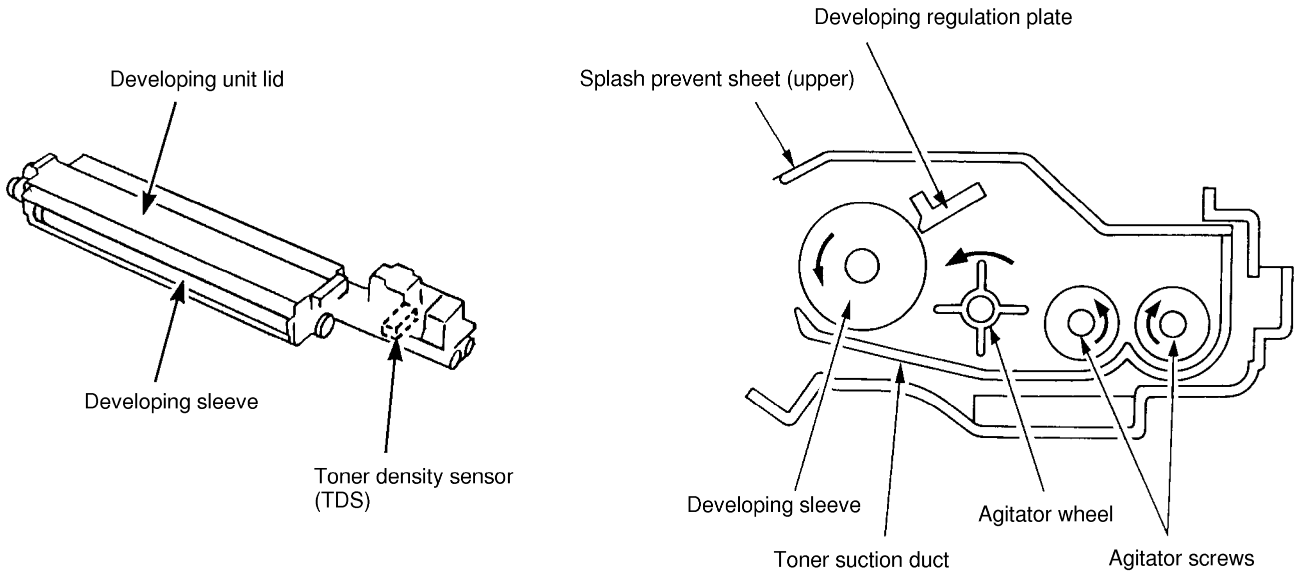
a. Output signals

(1) M8 DRIVE 1, 2 (CB → M8)
M8 drive signals
The drive direction of M8 is controlled by changing over the drive current direction of these two signals.

Status	M8 DRIVE 1	M8 DRIVE 2
Cleaning forward stroke	H	L
Cleaning return stroke	L	H
When stopped	L	L

DEVELOPING UNIT

[1] Composition


Developing unit lid
Developing sleeve
Toner density sensor (TDS)
Developing regulation plate
Splash prevent sheet (upper)
Developing sleeve
Agitator wheel
Toner suction duct
Agitator screws

[2] Mechanism

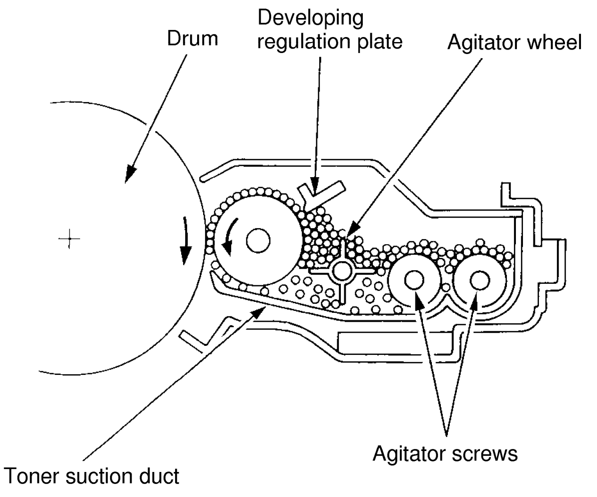
Mechanism	Method
Developing	2-component developer
Developing bias	DC bias
Developer agitation	Main agitator Auxiliary agitator

1. Developing Unit Drive

The drive for the developing unit is divided into the drive for the developing sleeve and that for the agitating section. These parts are driven by the developing drive motor (M3) and the agitator screw motor (M35), respectively.

2. Flow of Developer

The developer inside the developing unit is supplied to the developing sleeve by the agitator wheel, and regulated at a constant thickness by the developing regulation plate (bristle height regulation plate). The developer remaining on the developing sleeve is returned to the agitator screw.

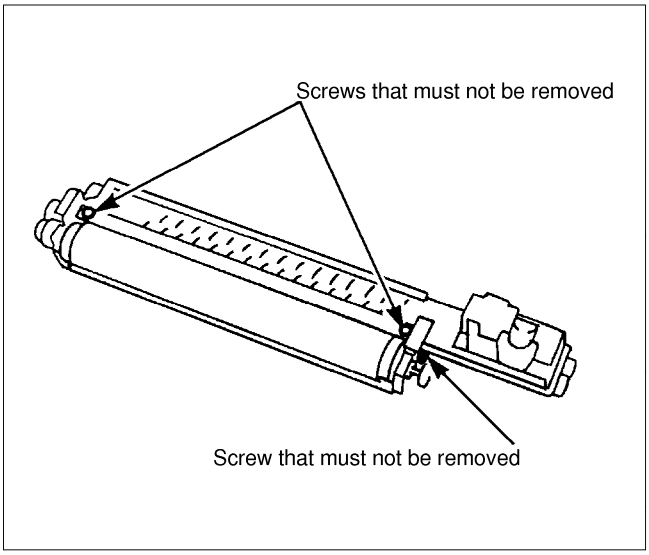

Drum
Developing regulation plate
Agitator wheel
Agitator screws
Toner suction duct

[3] Disassembly/Assembly

1. Screws that must not be Removed

(1) The two set screws of the developing regulation plate

(2) The set screw for the magnet angle adjustment knob


Screws that must not be removed
Screw that must not be removed

2. Removing and Re-installing the Developing Unit

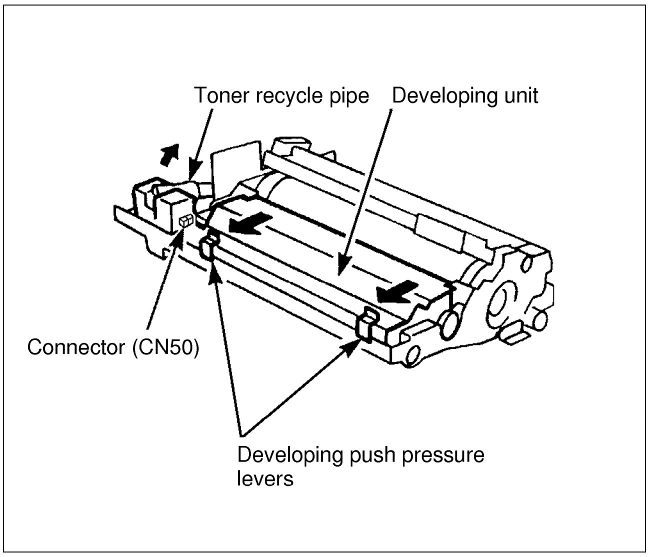
a. Procedure

(1) Remove the drum unit from the main body.

(2) Release the developing push pressure levers (front and rear).

(3) Disconnect the connector (CN50), then raise the toner recycle pipe.

(4) Remove the developing unit from the drum unit.

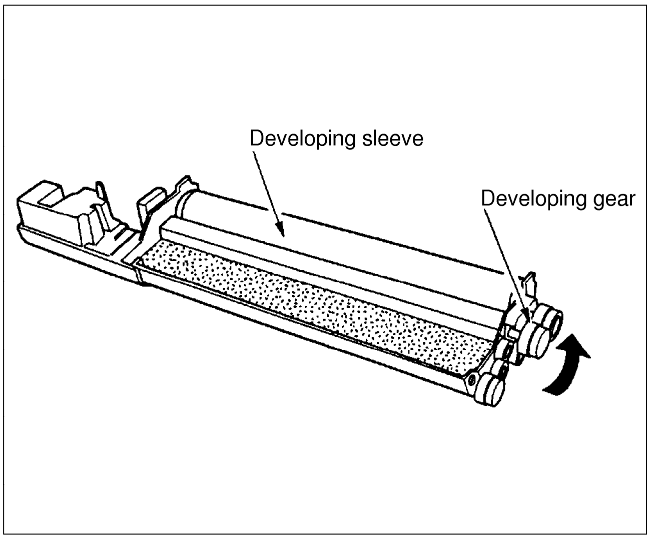

Toner recycle pipe
Developing unit
Connector (CN50)
Developing push pressure levers

(5) Re-install the developing unit in the opposite sequence to removal.

3. Replacing the Developer

Caution:

1. When replacing the developer, take care that dirt does not become mixed with it.
2. If the developing sleeve is rotated, the developing gear rotates in the counterclockwise direction. NEVER rotate the developing gear in the clockwise direction.

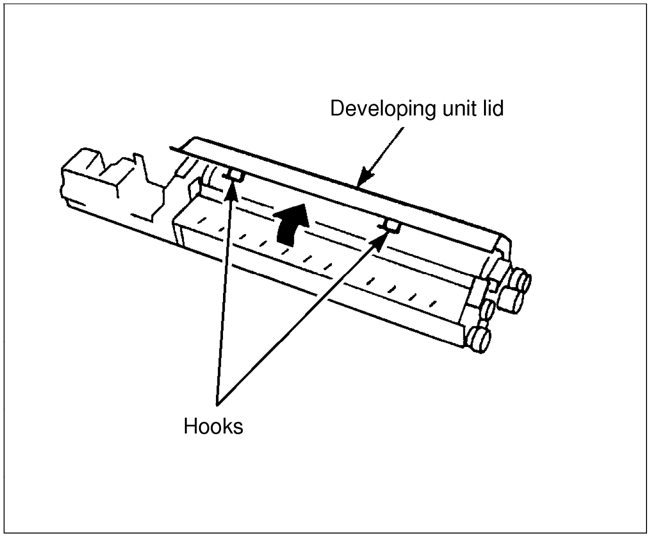

Developing sleeve
Developing gear

a. Procedure

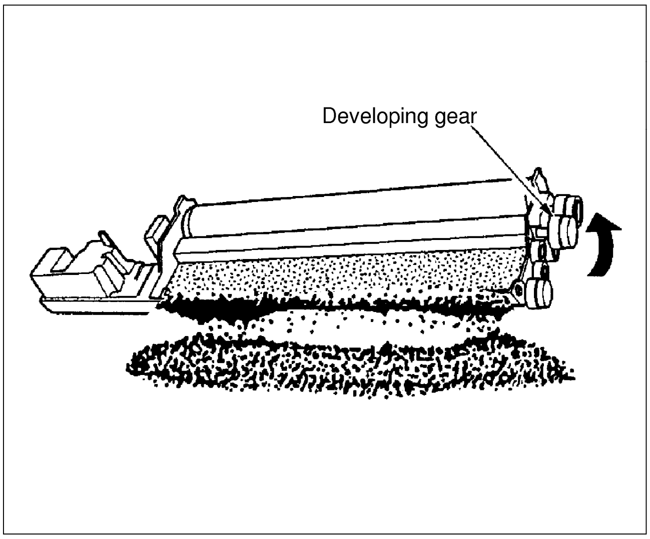
(1) Remove the drum unit from the main body.

(2) Remove the developing unit from the drum unit.

(3) Release the hooks on the developing unit lid, then lift up and remove the lid.


Developing unit lid
Hooks

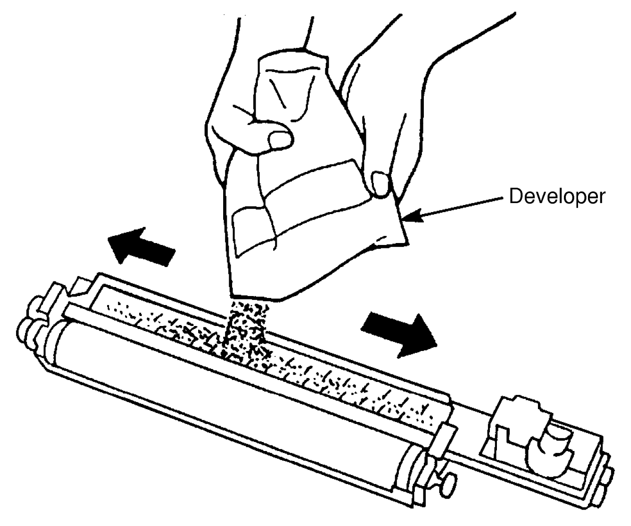
(4) Tilt the developing unit, then rotate the developing gear in the counterclockwise direction until all of the developer adhering to the inside of the developing unit and the magnet roller is discharged.



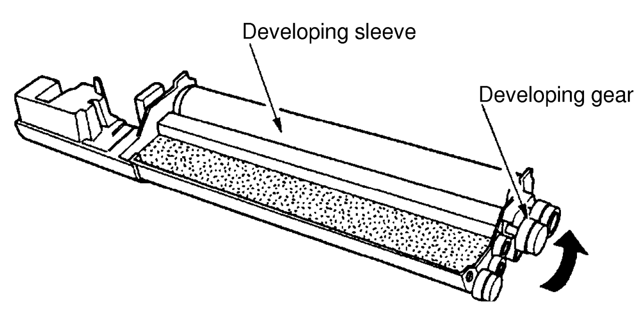
(5) Supply fresh developer evenly from the top of the agitator screw.

(6) Rotate the agitator gear counterclockwise until all of the developer enters the developing unit.

(7) Repeat steps (5) and (6) until all of the developer has been supplied to the developing unit.



(8) Rotate the developing gear in the counterclockwise direction, and confirm that the developer bristles along the entire length of the developing sleeve.

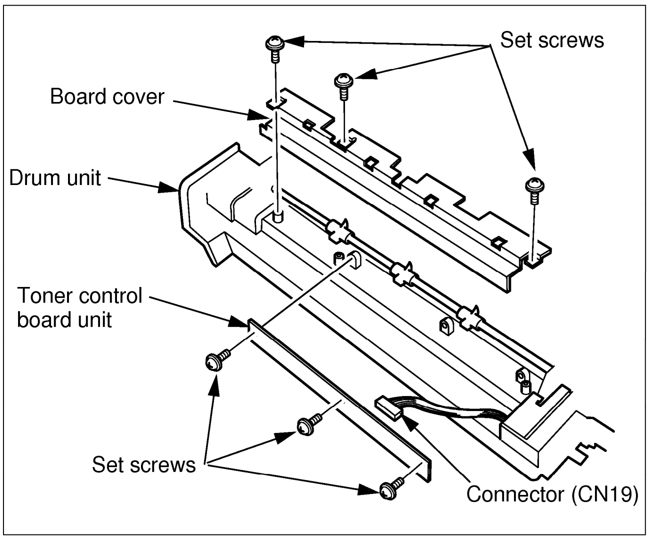


(9) Install the developing unit lid, then install the developing unit to the drum unit.

4. Removing and Re-installing the Toner Control Board Unit

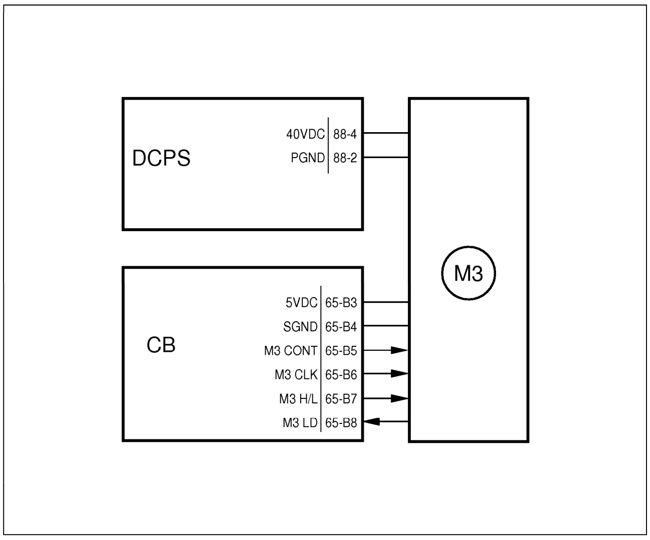
a. Procedure

(1) Remove the drum unit from the main body.
(2) Remove the three set screws, then remove the board cover.
(3) Remove the three set screws, then remove the toner control board unit.
(4) Disconnect the connector (CN19) from the toner control board.


Set screws
Board cover
Drum unit
Toner control board unit
Set screws
Connector (CN19)

(5) Re-install the toner control board unit in the opposite sequence to removal.

[4] M3 (developing drive) Control


DCPS
40VDC 88-4
PGND 88-2
CB
5VDC 65-B3
SGND 65-B4
M3 CONT 65-B5
M3 CLK 65-B6
M3 H/L 65-B7
M3 LD 65-B8
M3

M3 (developing drive) is controlled by the CB (control board).

1. Operation

M3 is a 40 V DC drive motor which drives the developing sleeve. M3 is PLL-controlled by feedback signals from a speed sensor installed inside M3 itself, maintaining it at a constant speed.

M3 goes ON after the specified time from when the start button is pressed, and goes OFF again after the specified time from when the charging goes OFF.

2. Signals

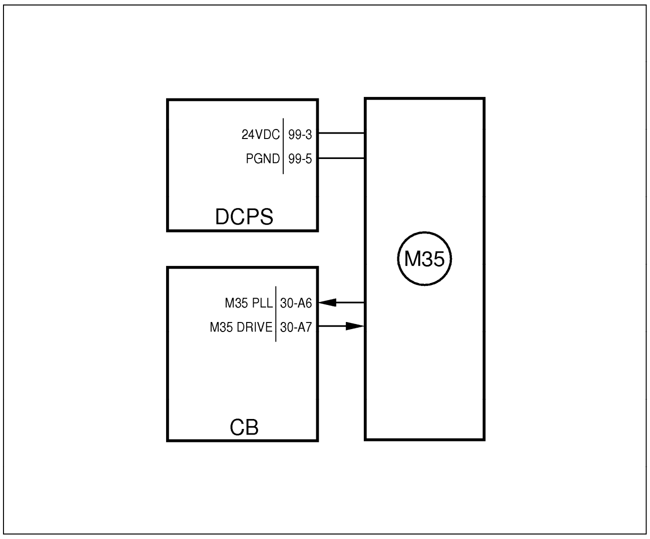
a. Input signal

(1) M3 LD (M3 → CB)
    [L] is output when M3 reaches the specified speed.

b. Output signals

(1) M3 CONT (CB → M3)
    M3 drive control signal
    [L]: M3 ON
    [H]: M3 OFF
(2) M3 CLK (CB → M3)
    M3 rotational speed control reference clock signal
(3) M3 H/L (CB → M3)
    M3 rotational speed control gain switching signal
    [L]: Low speed range
    [H]: High speed range

[5] M35 (agitator screw) Control



M35 (agitator screw) is controlled by the CB (control board).

1. Operation

M35 is a 24 V DC motor which drives the agitator screw and the agitator wheel. M35 is PLL-controlled using feedback signals from the speed sensor installed inside M35, maintaining it at a constant speed.

M35 goes ON when the start button is pressed, and goes OFF again when the last copy has been exited.

If the upper fixing roller does not reach the set temperature within the specified time from the start of warmup, M35 goes ON/OFF in synchronism with M1 (main) until completion of warmup because recycle section is operated by M1.

2. Signals

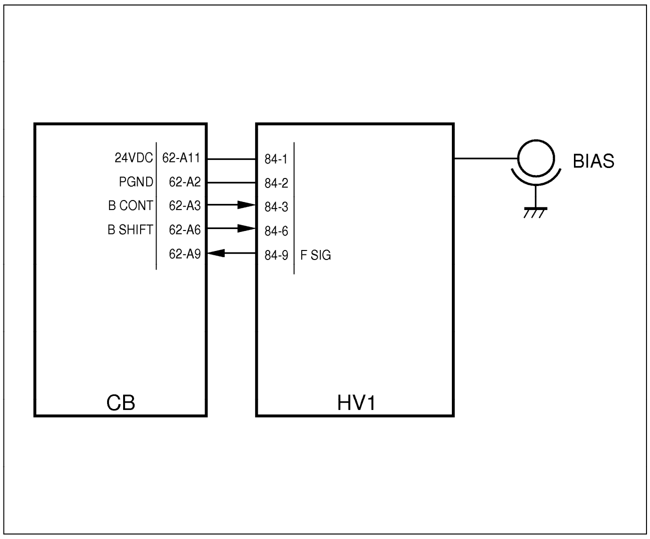
a. Input signal

(1) M35 PLL (M35 → CB)
[L] is output when M35 reaches the specified speed.

b. Output signal

(1) M35 DRIVE (CB → M35)
M35 drive control signal
[L]: M35 ON
[H]: M35 OFF

[6] Developing Bias Control



The developing bias is controlled by the CB (control board) via HV1 (high voltage unit 1).

1. Operation

The developing bias is applied to the sleeve in synchronism with M3 (developing drive).

2. Signals

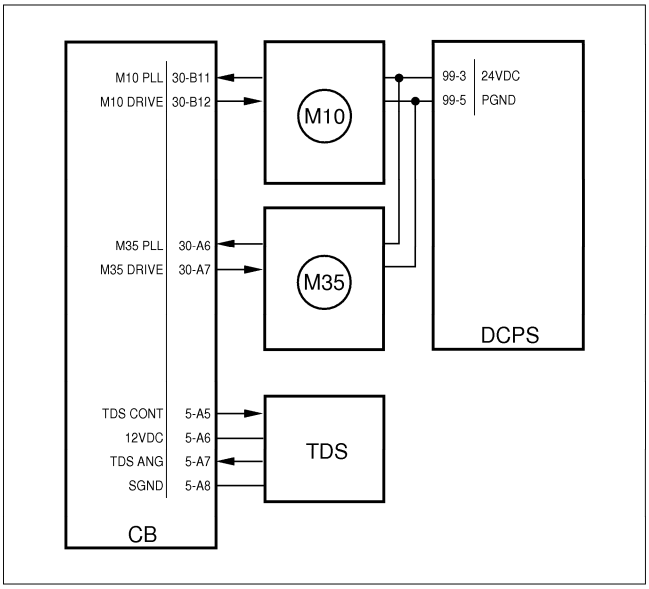
a. Output signals

(1) B CONT (CB → HV1)
Developing bias ON/OFF control signal
When this signal is [L], the developing bias goes ON, and high voltage is output.

(2) B SHIFT (CB → HV1)
This signal controls the output level of the developing bias by means of analog signals from the CB.

B SHIFT output range	2 to 8 V
Bias voltage output range	-440 to -700 VDC

[7] Toner Density Control



The toner density is controlled by the TDS (toner density sensor), M35 (agitator screw), M10 (toner supply) and the CB (control board).

1. Operation

a. Toner density detection

The TDS detects the density of the toner in the developing unit using an L detection method, and outputs an analog voltage signal that is proportion to the density to the CB. The CB compares the detected voltage with the reference voltage corresponding to the initial density of the developer, and judges the necessity of supplying toner.

b. Toner supply operation

M10 is driven by 24 VDC supplied from the DCPS (DC power supply unit).

(1) When the power is switched ON
M35 (agitator screw) starts to rotate as soon as the machine is switched ON, then after 4 minutes the toner density is read.

(2) During a copy operation
The relationship between the TDS output voltage (TDS ANG) and the toner supply time is as follows.

TDS output voltage	Toner supply time
2 V or lower	0 sec
2 to 2.11 V	0.24 sec
2.12 to 2.19 V	0.48 sec
2.20 to 2.29 V	0.72 sec
2.30 to 2.37 V	0.96 sec
2.38 to 2.45 V	1.20 sec
2.46 V or higher	1.80 sec

2. Signals

a. Input signals

(1) TDS ANG (TDS → CB)
Analog voltage proportional to the toner density is output.

(2) M10 PLL (M10 → CB)
[L] is output when M10 reaches the specified speed.

(3) M35 PLL (M35 → CB)
[L] is output when M35 reaches the specified speed.

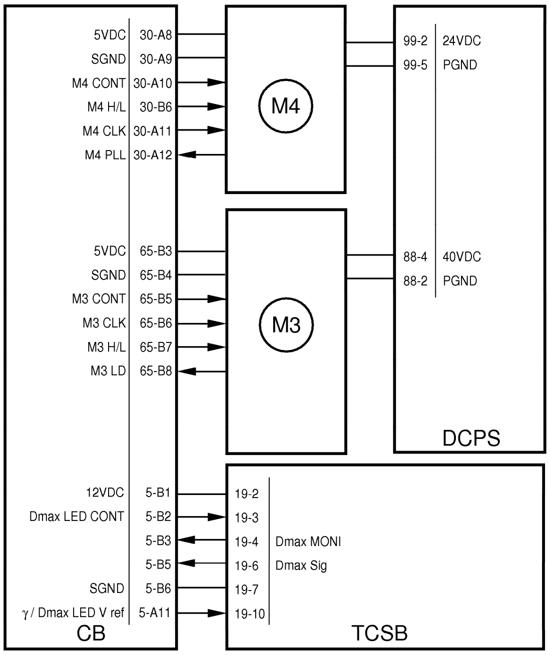
b. Output signals

(1) TDS CONT (CB → TDS)
TDS output voltage adjustment signal
Output voltage range: 4.9 to 9.8 V

(2) M10 DRIVE (CB → M10)
M10 drive control signal
Toner is supplied when M10 is ON.
[L]: M10 ON
[H]: M10 OFF

(3) M35 DRIVE (CB → M35)
M35 drive control signal
[L]: M35 ON
[H]: M35 OFF

[8] Dmax Control


5VDC 30-A8
SGND 30-A9
M4 CONT 30-A10
M4 H/L 30-B6
M4 CLK 30-A11
M4 PLL 30-A12
M4
99-2 24VDC
99-5 PGND
5VDC 65-B3
SGND 65-B4
M3 CONT 65-B5
M3 CLK 65-B6
M3 H/L 65-B7
M3 LD 65-B8
M3
88-4 40VDC
88-2 PGND
DCPS
12VDC 5-B1
Dmax LED CONT 5-B2
5-B3
5-B5
SGND 5-B6
γ / Dmax LED V ref 5-A11
CB
19-2
19-3
19-4 Dmax MONI
19-6 Dmax Sig
19-7
19-10
TCSB

Dmax control is performed by the TCSB (toner control sensor board), M4 (drum), M3 (developing drive), and so on. These parts are controlled by the CB (control board).

1. Operation

Dmax control is intended to align the maximum density for each machine with the reference level.

(1) Contents of implementation

Latent images are created several times at the maximum exposure, the images are developed while the rotational speed of the sleeve is varied, then each density is read by the PD1 on the TCSB.

The rotational speed of the sleeve when the density reaches the reference level is memorized as the optimum sleeve speed, then subsequently developing is carried out at this sleeve speed until Dmax correction takes place next.

(2) Implementation timing

a) When the power is switched on
b) At 500 copies
c) At 1000 copies
d) Every 5000 copies
e) Every 1000 jobs
f) Every 3000 jobs (see *1)

*1: Can be changed with the 25 Mode software switch.

2. Signals

a. Input signals

(1) Dmax Sig (TCSB → CB)
Output voltage of the Dmax value detection sensor on the TCSB
Reference voltage: 1.5 V

(2) Dmax MONI (TCSB → CB)
This is the monitor signal for light reflected from the drum surface (no toner). The voltage impressed on the Dmax detection LED is corrected (calibration) by γ/Dmax LED V ref until this output becomes 6V.
Reference voltage: 6V

<Implementation timing>
Calibration takes place before Dmax correction.

(3) M3 LD (M3 → CB)
[L] is output when M3 reaches the specified speed.

(4) M4 PLL (M4 → CB)
[L] is output when M4 reaches the specified speed.

b. Output signals

(1) Dmax LED CONT (CB → TCSB)
The control signal used to turn on and off the LED for PD1 on the TCSB.

(2) γ/Dmax LED V ref (CB → TCSB)
DC voltage is supplied to LED of PD1 on the TCSB by this line.
CB changes this voltage until Dmax MONI signal becomes 6V.

(3) M3 CONT (CB → M3)
M3 drive control signal
[L]: M3 ON
[H]: M3 OFF

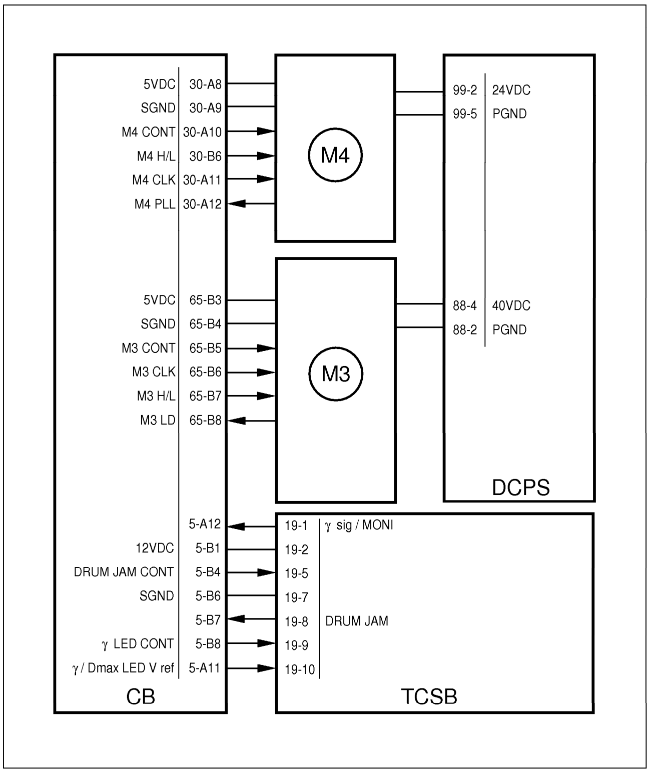
(4) M3 CLK (CB → M3)
M3 rotational speed control reference clock signal

(5) M4 CONT (CB → M4)
M4 drive control signal
[L]: M4 ON
[H]: M4 OFF

(6) M4 H/L (CB → M4)
M4 rotational speed switchover signal
Normally [H]: 370 mm/sec

(7) M4 CLK (CB → M4)
M4 rotational speed control reference clock signal

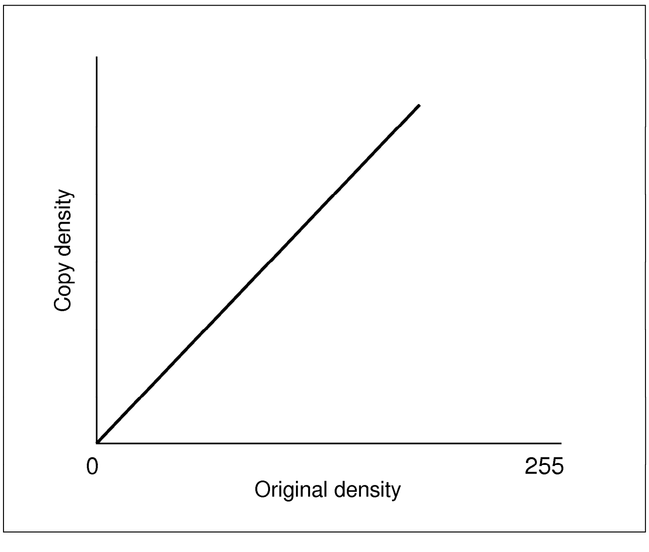
[9] Gradation Correction Control


5VDC 30-A8
SGND 30-A9
M4 CONT 30-A10
M4 H/L 30-B6
M4 CLK 30-A11
M4 PLL 30-A12
5VDC 65-B3
SGND 65-B4
M3 CONT 65-B5
M3 CLK 65-B6
M3 H/L 65-B7
M3 LD 65-B8
5-A12
12VDC 5-B1
DRUM JAM CONT 5-B4
SGND 5-B6
5-B7
γ LED CONT 5-B8
γ / Dmax LED V ref 5-A11
CB
M4
M3
99-2 24VDC
99-5 PGND
88-4 40VDC
88-2 PGND
DCPS
19-1 γ sig / MONI
19-2
19-5
19-7
19-8 DRUM JAM
19-9
19-10
TCSB

Gradation correction is controlled by the TCSB (toner control sensor board), M4 (drum), M3 (developing drive). These parts are controlled by the CB (control board).

1. Operation

The gradation characteristics of the toner density versus exposure amount at the image forming section of each machine is detected, and gradation correction processing carried out in order to obtain a linear relation between the original density and the copy density.



(1) Contents of implementation

Exposure is performed while the laser exposure is varied over several steps, and development is performed at the sleeve speed resulting from Dmax correction.

Subsequently, each density is read by PD2 on the TCSB, and the gradation characteristics of the toner density is detected.

The gradation characteristics obtained here are used as the correction values for the laser exposure amount.

(2) Implementation timing

a) When the power is switched ON
b) Every 5000 copies
c) Every 3000 jobs (see *1)

*1: Can be changed with the 25 Mode software switch.

2. Signals

a. Input signals

(1) γ sig/MONI (TCSB → CB)

This is the output voltage from the gradation detection sensor (PD2) on the TCSB and the monitor signal for the light reflected from the drum surface (no toner).

The voltage impressed on the Dmax detection LED is corrected (calibration) by γ/Dmax LED Vref.

Reference voltage: 9V

<Implementation timing>

To be performed before gradation correction.

(2) DRUM JAM (TCSB → CB)

This signal detects a jam caused by paper wrapping around the drum. If it is more than 4.3 V, the CB judges that a jam has occurred.

(3) M3 LD (M3 → CB)

[L] is output when M3 reaches the specified speed.

(4) M4 PLL (M4 → CB)

[L] is output when M4 reaches the specified speed.

b. Output signals

(1) γ LED CONT (CB → TCSB)

ON/OFF control signal for the gradation detection LED
[L]: LED ON
[H]: LED OFF

(2) γ/Dmax LED V ref (CB → TCSB)

The power supply line for the LED of PD2 on the TCSB The voltage value is adjusted so the γ MONI signal will be 9VDC.

(3) DRUM JAM CONT (CB → TCSB)

This signal controls the ON/OFF state of the wrapping jam detection LED.
[L]: LED ON
[H]: LED OFF

(4) M3 CONT (CB → M3)

M3 drive control signal
[L]: M3 ON
[H]: M3 OFF

(5) M3 CLK (CB → M3)
Reference clock signal for controlling the rotational speed of M3

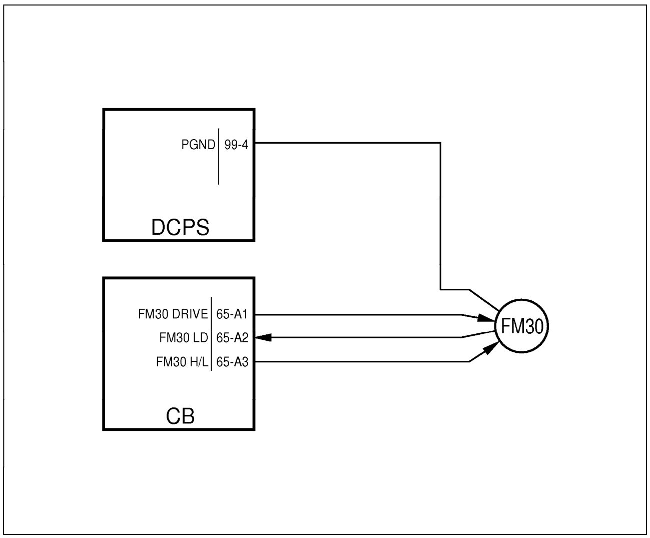
(6) M3 H/L (CB → M3)
M3 rotational speed control gain switching signal
[L]: Low speed range
[H]: High speed range

(7) M4 CONT (CB → M4)
M4 drive control signal
[L]: M4 ON
[H]: M4 OFF

(8) M4 H/L (CB → M4)
M4 rotational speed switching signal
Normally [H]: 370 mm/sec

(9) M4 CLK (CB → M4)
Reference clock signal for controlling the rotational speed of M4

[10] FM30 (developing suction) Control



FM30 (developing suction) is controlled by the CB (control board).

1. Operation

FM30 is a 24 V DC motor.
It goes ON and OFF in synchronism with M1 (main).

2. Signals

a. Input signal

(1) FM30 LD (FM30 → CB)
[L] is output when FM30 reaches the specified speed.

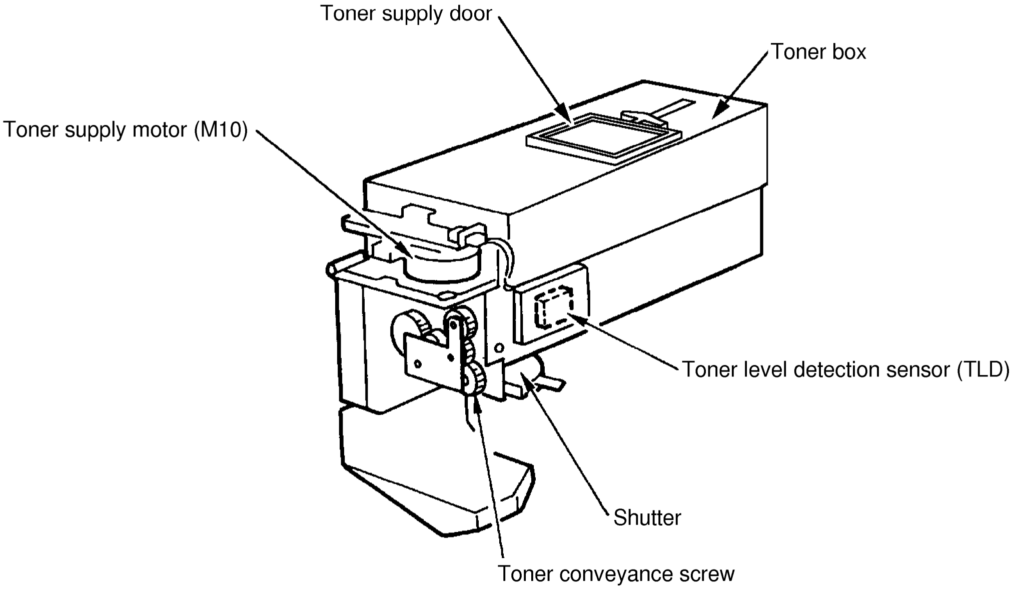
b. Output signals

(1) FM30 DRIVE (CB → FM30)
Drive control signal for FM30
[L]: FM30 OFF
[H]: FM30 ON

(2) FM30 H/L (CB → FM30)
FM30 rotational speed control signal.
This signal is always [L].

TONER SUPPLY UNIT

[1] Composition


Toner supply door
Toner box
Toner supply motor (M10)
Toner level detection sensor (TLD)
Shutter
Toner conveyance screw

[2] Mechanisms

	Mechanism	Method
*1	Toner supply	Screw conveyance
	Toner level detection	Piezoelectric method 240±130g
	Toner agitating	Agitator plate
	Toner box	Capacity 1270g
*2	Toner leakage prevention	Toner supply shutter

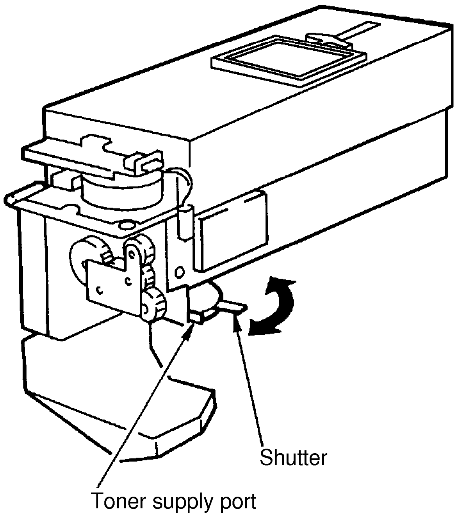
*1: Toner supply

a. The rotational force of the toner supply motor is transmitted via gears to the toner conveyance screw and the toner agitator shaft, causing the shaft to rotate.

b. The toner that has been agitated by the agitator plate installed on the toner agitator shaft is supplied to the developing section.

*2: Toner supply shutter

When pulling the toner supply unit forward to install toner this causes the toner supply port to close, preventing leakage of toner. When you return the toner supply unit to the main body (normal position), the toner supply port aligns with the developing unit.


Shutter
Toner supply port

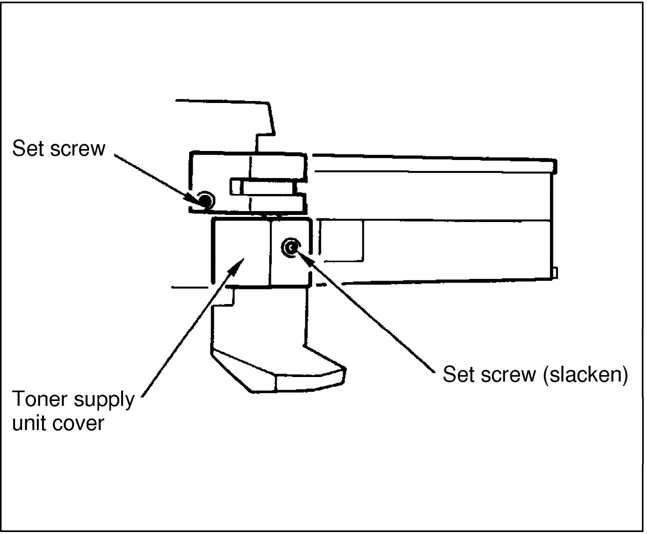
[3] Disassembly and Re-assembly

1. Removing and Re-installing the Toner Supply Unit

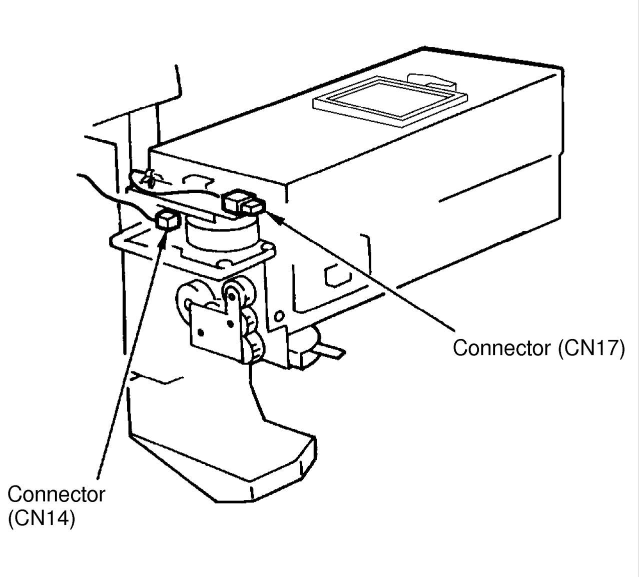
a. Procedure

(1) Open the front door, slacken the set screw, release the lock of the toner supply unit, then pull the toner supply unit forward.

(2) Slacken the set screw shown at the bottom right of the figure, and remove the set screw shown at the top left then remove the cover of the toner supply unit.

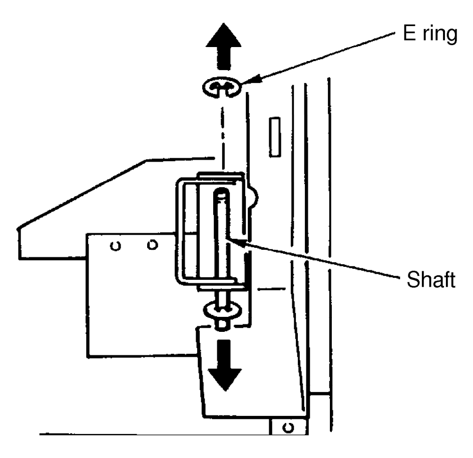

Set screw
Set screw (slacken)
Toner supply unit cover

(3) Disconnect the two connectors (CN17 and 14).


Connector (CN17)
Connector (CN14)

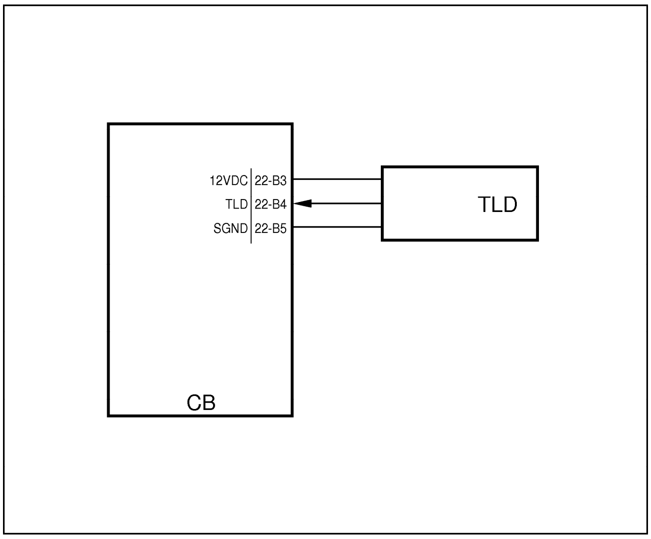
(4) Close the toner supply unit, then remove the E ring.

(5) Pull out the shaft toward the bottom, then remove the toner supply unit.


E ring
Shaft

(6) Re-install the toner supply unit in the opposite sequence to removal.

[4] Toner Level Detection Control



Toner level detection is controlled by the TLD (toner level detection sensor) and the CB (control board).

1. Operation

a. Toner level detection sensor

A piezoelectric device is used as the TLD.

When the level of toner in the toner box becomes low, the “supply toner” signal is output to the CB. As a result, a message is displayed on the LCD connected to the OB1 (operation board 1).

b. Detection timing

The detection timing is as follows.

* When the machine is switched ON
* When the front door is opened and closed
* During a copy operation

2. Signal

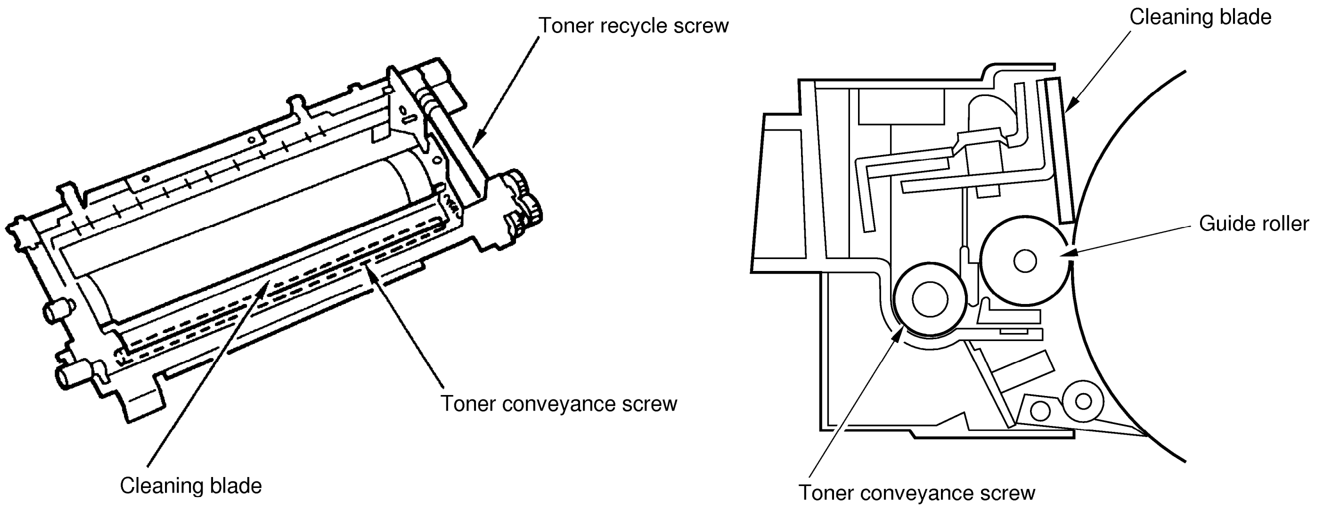
a. Input signal

(1) TLD (TLD → CB)

When the level of toner in the toner box becomes low, this signal becomes [L], and a message is displayed on the LCD connected to the OB1.

CLEANING/TONER RECYCLE UNIT

[1] Composition



[2] Mechanisms

Mechanism	Method
Drum cleaning	Cleaning blade (Weight load application method)
Toner recycle	Screw conveyance to the developing section
Toner collection	Toner guide roller

[3] Disassembly and Re-assembly

1. Removing and Re-installing the Cleaning Blade

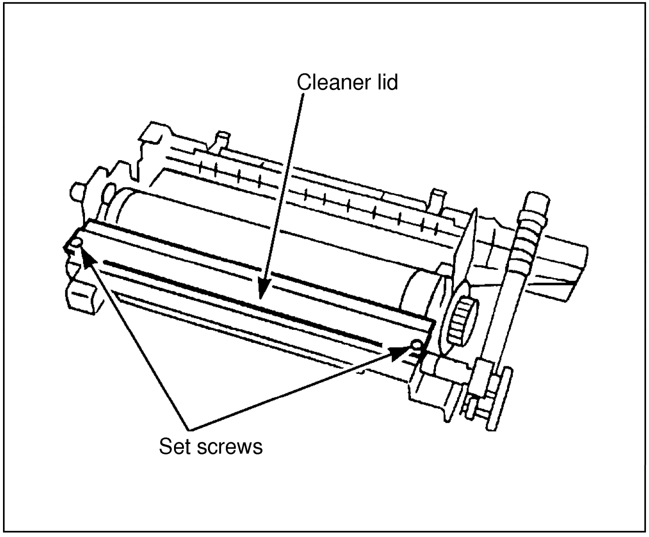
⚠Caution: Be sure that the power cord has been unplugged from the power outlet.

Caution:

1. Do not touch the edge of the cleaning blade with bare hands.
2. When installing the drum, cleaning blade and guide roller, coat the entire surface of the drum and also the cleaning blade with setting powder, regardless of whether the drum and cleaning blade are new or old. Also, apply toner to both edges of the cleaning blade.
3. Once the drum has been coated with setting powder, carry out the following work before installing the drum unit on the main body.
   1) To ensure that the toner density is correct, before installing the drum to the drum unit, discharge the surface of γ detection sensor and the Dmax sensor on the toner control board by using a piece of cloth moistened with alcohol, thus preventing toner from adhering to the sensors.
   2) With the charging corona unit and the developing unit removed, insert the centering jigs into both sides of the drum, then turn the drum one revolution. This prevents setting powder from scattering onto the charging corona unit and also prevents image defects.
4. Take care that the blade spacer mounted on the cleaning blade shaft at the back does not drop out.

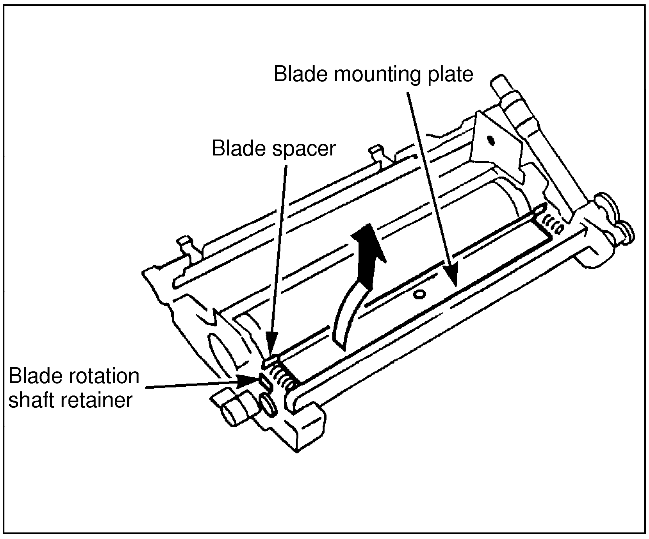
a. Procedure

(1) Open the front door, then remove the drum unit.
(2) Remove the charging corona unit.
(3) Remove the two set screws, then remove the cleaner lid.

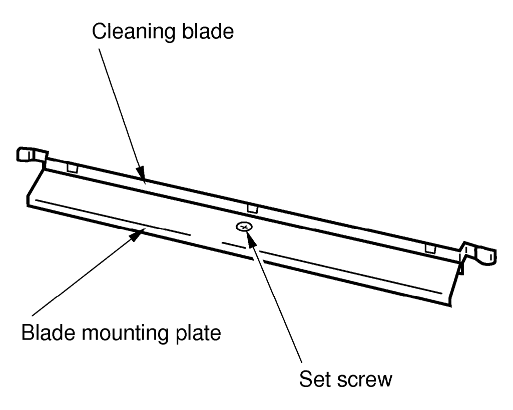

Cleaner lid
Set screws

(4) Remove the blade rotation shaft retainer.
(5) Lift out and remove the blade mounting plate.

Caution: Take care that the blade spacer does not drop out.


Blade mounting plate
Blade spacer
Blade rotation shaft retainer

(6) Remove the set screw, then remove the cleaning blade from the blade mounting plate.

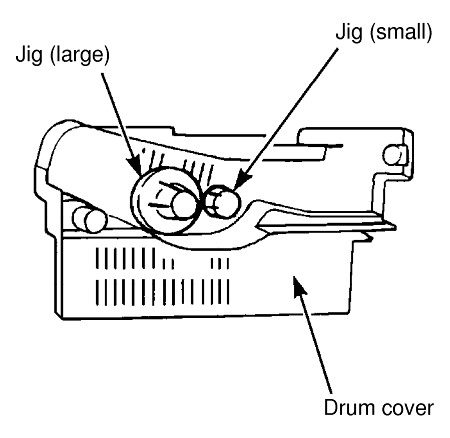

Cleaning blade
Blade mounting plate
Set screw

(7) Re-install the cleaning blade in the opposite sequence to removal.

2. Removing and Re-installing the Guide Roller

Caution:

1. When installing the guide roller, it is necessary to set the drum accurately in the center position. When the drum unit used in this machine is removed, the drive shaft remains in the main body, hence it is necessary to center the drum using the two jigs inside the drum cover.


Jig (large)
Jig (small)
Drum cover

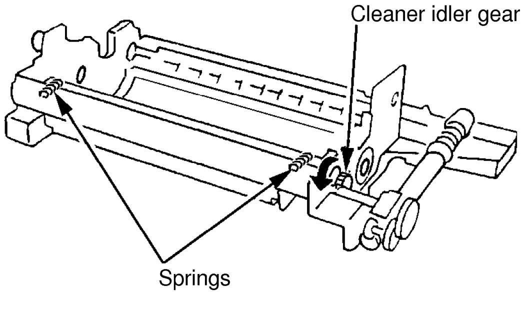
2. When installing the drum, cleaning blade and guide roller, coat the entire surface of the drum and also the cleaning blade with setting powder, regardless of whether the drum and cleaning blade are new or old. Also, apply toner to both edges of the cleaning blade.
3. Once the drum has been coated with setting powder, carry out the following work before installing the drum unit on the main body.
   1) To ensure that the toner density is correct, before installing the drum to the drum unit, discharge the surface of γ detection sensor and the Dmax sensor on the toner control board by using a piece of cloth moistened with alcohol, thus preventing toner from adhering to the sensors.
   2) With the charging corona unit and the developing unit removed, insert the centering jigs into both sides of the drum, then turn the drum one revolution. This prevents setting powder from scattering onto the charging corona unit and also prevents image defects.

a. Procedure

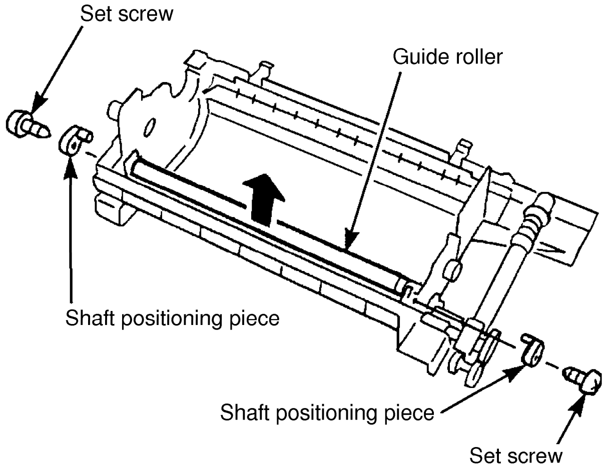
(1) Remove the drum unit.
(2) Remove the charging corona unit, blade mounting plate, developing unit and drum from the drum unit.

Note: Before removing the drum, rotate cleaner idler gear counterclockwise in order to prevent toner from dropping to the bottom of the unit, and also remove any toner between the drum and the guide roller.

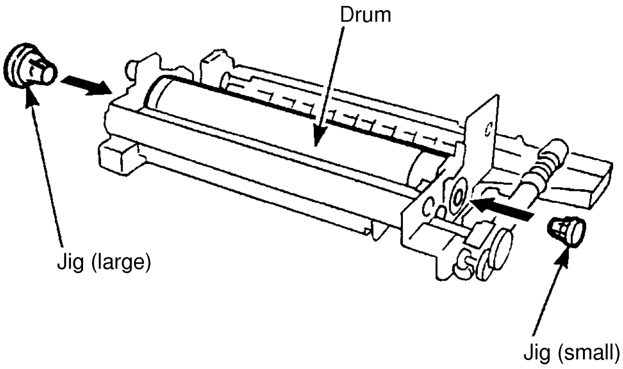
(3) Remove the cleaner idler gear and the two springs.



(4) Remove the left and right set screws (one each), then remove the left and right shaft positioning pieces.
(5) Lift out the guide roller.

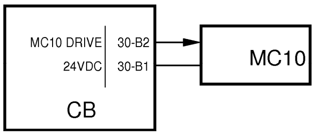


(6) Clean any toner that has dropped off the guide roller.
(7) Install the drum, then insert the centering jigs into both ends of the drum.



(8) Install the guide roller and the two shaft positioning pieces, and temporarily fix these parts with the two set screws.
(9) Install the two springs and bring the guide roller and the drum into contact with each other, then fully tighten the two set screws that you temporarily inserted.
(10) Remove the centering jigs from the ends of the drum, and store them inside the drum cover.
(11) Re-install the guide roller in the opposite sequence to removal.

[4] MC10 (cleaner) Control


MC10 DRIVE
24VDC
30-B2
30-B1
CB
MC10

MC10 (cleaner) is driven by the CB (control board).

1. Operation

MC10 uses a 24 VDC solenoid which goes ON and OFF in synchronism with M4 (drum).

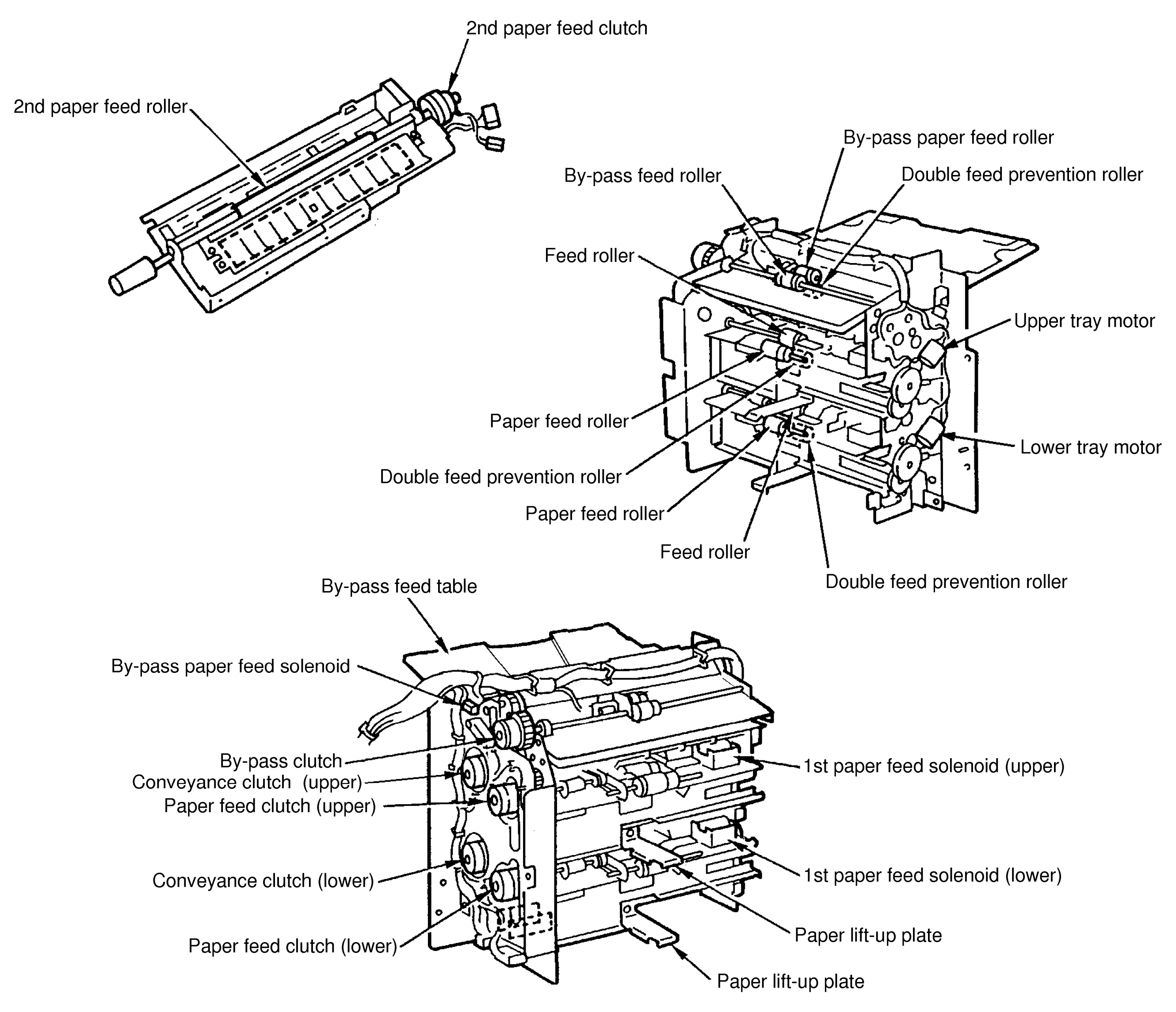
2. Signal

a. Output signal

(1) MC10 DRIVE (CB → MC10)
MC10 drive control signal
[L]: MC10 ON
[H]: MC10 OFF

PAPER FEED UNIT

[1] Composition


2nd paper feed clutch
2nd paper feed roller
By-pass paper feed roller
By-pass feed roller
Double feed prevention roller
Feed roller
Upper tray motor
Paper feed roller
Lower tray motor
Double feed prevention roller
Paper feed roller
Feed roller
Double feed prevention roller
By-pass feed table
By-pass paper feed solenoid
By-pass clutch
Conveyance clutch (upper)
Paper feed clutch (upper)
1st paper feed solenoid (upper)
Conveyance clutch (lower)
1st paper feed solenoid (lower)
Paper lift-up plate
Paper feed clutch (lower)
Paper lift-up plate

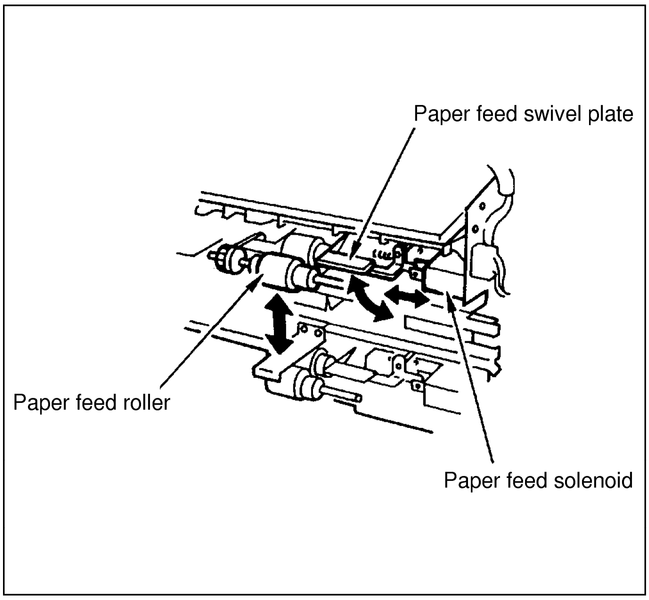
[2] Mechanisms

	Mechanism	Method
	Paper stack	Tray (2-stage)
*1	Paper lift pressure reduction	Swivel roller (Paper feed roller)
*2	Paper lift-up	Paper lift-up plate
	Double feed prevention	Torque limiter
*3	Tray loading	Front loading
	1st paper feed	Feed roller, 1st paper feed solenoid

	Mechanism	Method
	2nd paper feed	Registration roller, 2nd paper feed clutch
	Multi-tray paper feed	Feed roller, by-pass paper feed solenoid
*4	Paper size detection	Tray detection switch (upper Tray: tact switch, (lower Tray: Write paper size to memory.)
*5	Reverse feed inhibitor	Reverse feed inhibitor solenoid + ratchet

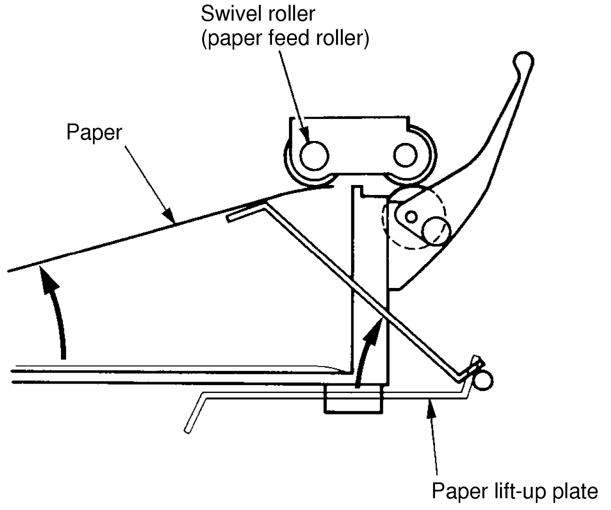
*1: Swivel roller

The paper feed direction and the Tray loading direction are at right angles to each other. Consequently, if the feed roller is fixed, it will touch the paper when the Tray is removed, resulting in possible paper jamming. To prevent this, the swivel roller (paper feed roller) is designed so that it drops down and touches the paper only when paper feed is taking place.


Paper feed swivel plate
Paper feed roller
Paper feed solenoid

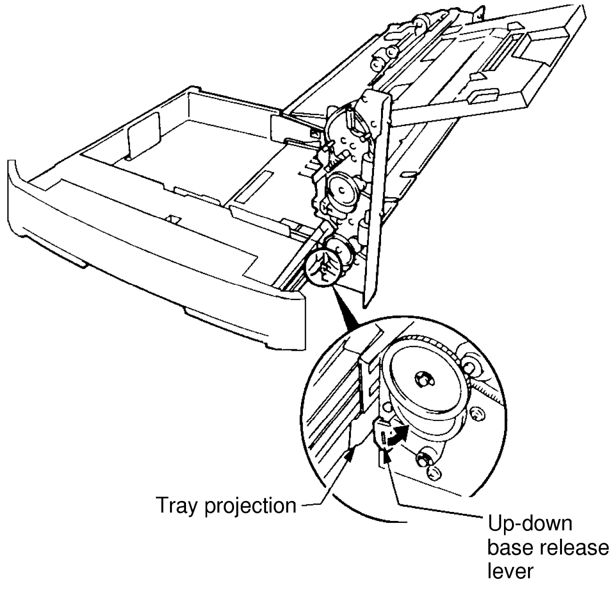
*2: Paper lift-up

When the paper feed tray is installed, the paper lift-up plate is moved by the tray motor, paper feed idler gear and the paper lift-up gear, causing the paper in the tray to be fed automatically to the paper feed position.


Swivel roller
(paper feed roller)
Paper
Paper lift-up plate

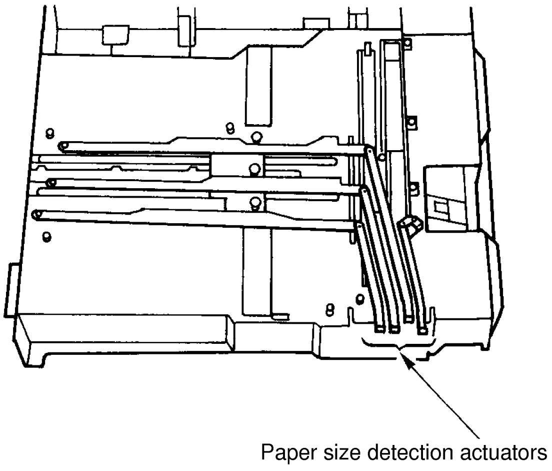
*3: Paper up-down base release operation

When the tray is being removed, the projection on the right side of the tray strikes the paper up-down base release lever, causing the paper lift-up gear to be disengaged by the gear coupling lever. As a result, the up-down base falls under its own weight.


Tray projection
Up-down
base release
lever

*4: Paper size detection

The side guide and rear guide of the upper tray move, causing the paper size detection actuators to move as well. As a result, the switch on the detection board is turned ON/OFF. In this way, paper size detection takes place automatically.


Paper size detection actuators

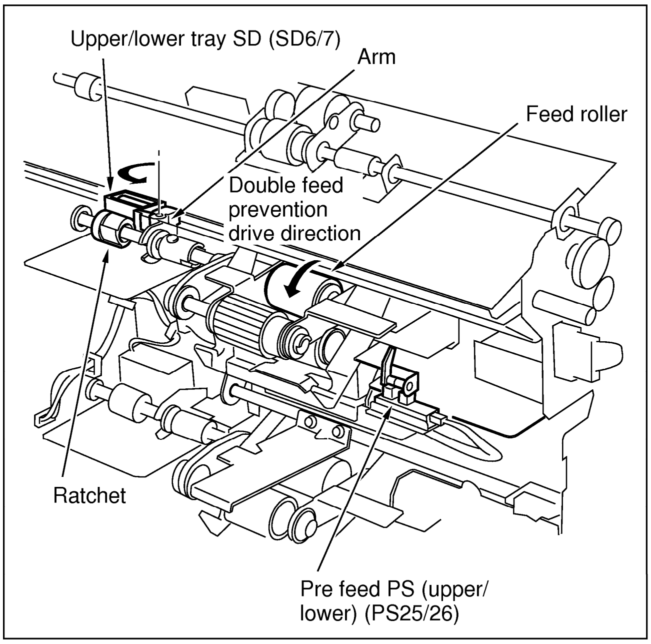
*5: Reverse feed inhibitor

The following operation is used to prevent paper that has been pre fed being returned to the paper tray due to the reverse direction drive of the double feed prevention.

(1) The pre feed PS (upper/lower) (PS25/26) detects the paper.

(2) The upper/lower tray SD (SD6/7) operates, and the arm mesh with the ratchet claws.

(3) The rotation of the feed roller is controlled, and the leading edge of the paper is stopped near the center of the feed roller.


Upper/lower tray SD (SD6/7)
Arm
Feed roller
Double feed prevention drive direction
Ratchet
Pre feed PS (upper/ lower) (PS25/26)

[3] Disassembly and Re-assembly

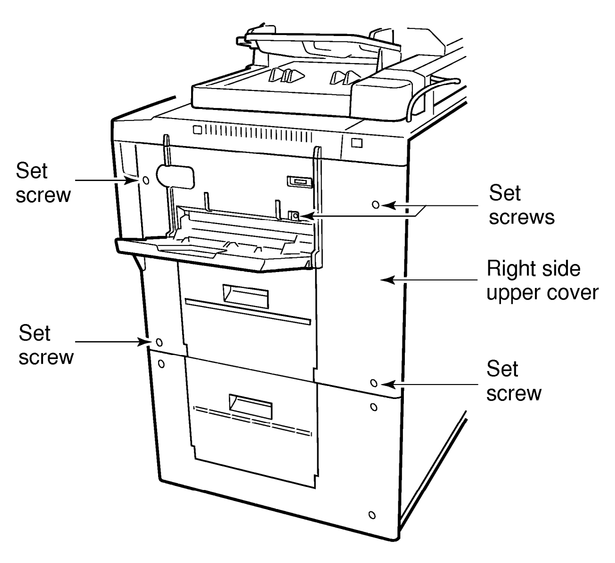
1. Removing and Re-installing the Paper Feed Unit

⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

a. Procedure

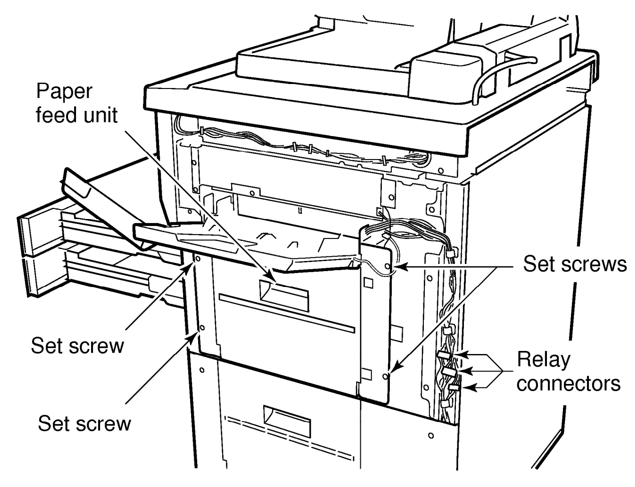
(1) Open the front door, then pull out the upper/lower tray in the forward direction.

(2) Slacken the five set screws, then remove the right side upper cover.


Set screw
Set screws
Right side upper cover
Set screw
Set screw

(3) Disconnect the three relay connectors, then remove the paper feed cable from the cord clamp.

(4) Remove the four set screws, then remove the paper feed unit.


Paper feed unit
Set screws
Set screw
Relay connectors
Set screw

(5) Re-install the paper feed unit in the opposite sequence to removal.

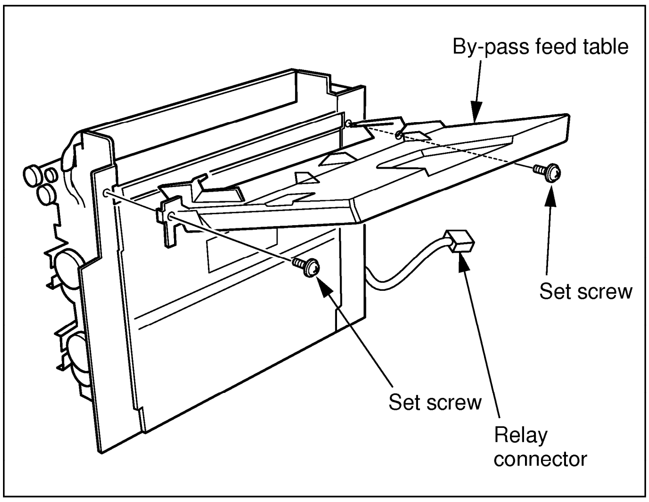
2. Removing and Re-installing the By-pass Feed Table

a. Procedure

(1) Remove the paper feed unit.

(2) Remove the relay connector of the paper feed connector.

(3) Remove the two set screws, then remove the by-pass feed table.


By-pass feed table
Set screw
Set screw
Relay connector

(4) Re-install the by-pass feed table in the opposite sequence to removal.

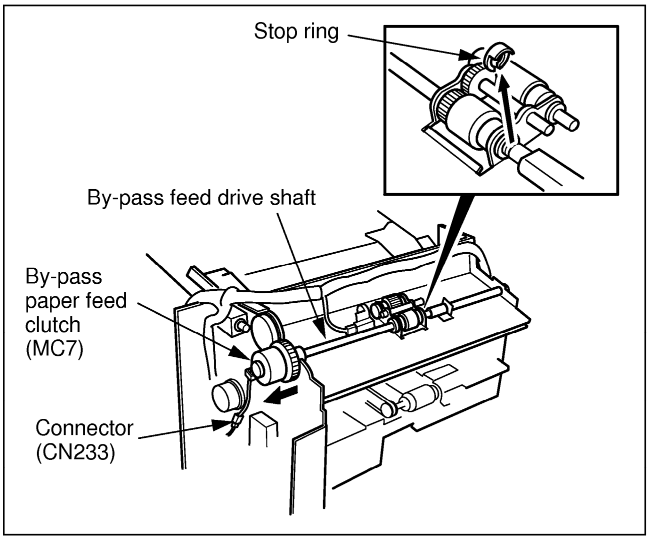
3. Replacing the Rubber of the By-pass Feed Roller/By-pass Paper Feed Roller

a. Procedure

(1) Remove the paper feed unit.

(2) Disconnect the connector (CN233) of the by-pass paper feed clutch (MC7).

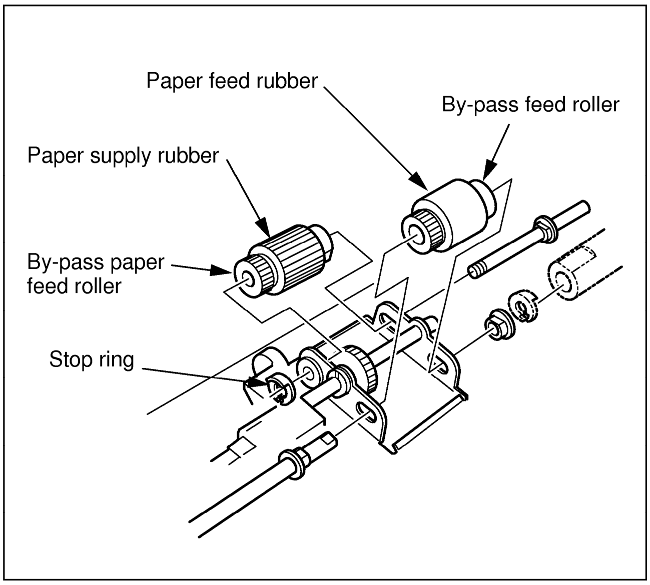
(3) Remove one stop ring from the by-pass feed drive shaft, then pull out the by-pass feed drive shaft from the by-pass paper feed clutch side.


Stop ring
By-pass feed drive shaft
By-pass paper feed clutch (MC7)
Connector (CN233)

(4) Remove the by-pass feed roller from the by-pass drive shaft.

(5) Remove the stop ring, then remove the by-pass paper feed roller.

(6) Remove the rubber (paper feed rubber, paper supply rubber) from each roller.


Paper feed rubber
By-pass feed roller
Paper supply rubber
By-pass paper feed roller
Stop ring

(7) Re-install the above parts in the opposite sequence to removal.

4. Replacing the rubber (paper supply rubber) of the by-pass feed double feed prevention roller

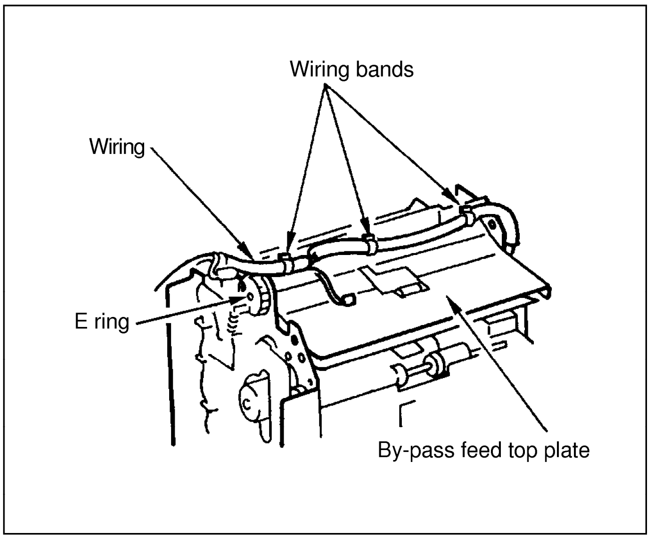
a. Procedure

(1) Remove the paper feed unit.

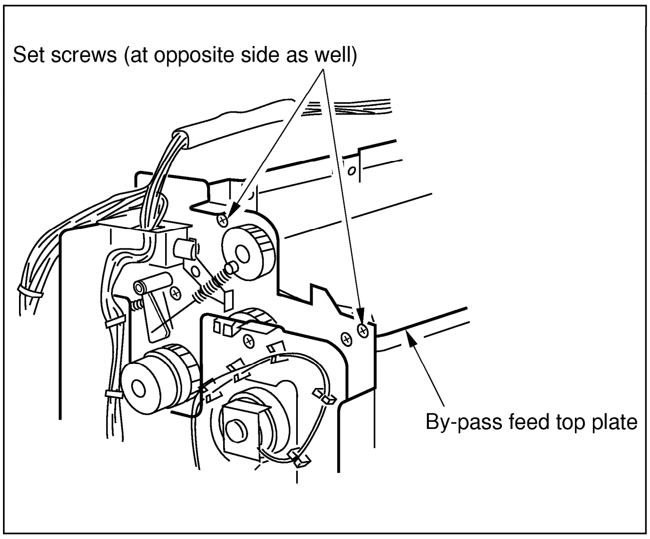
(2) Remove the by-pass feed base.

(3) Remove the by-pass feed roller.

(4) Cut the three wiring bands so as to free the wiring.


Wiring bands
Wiring
E ring
By-pass feed top plate

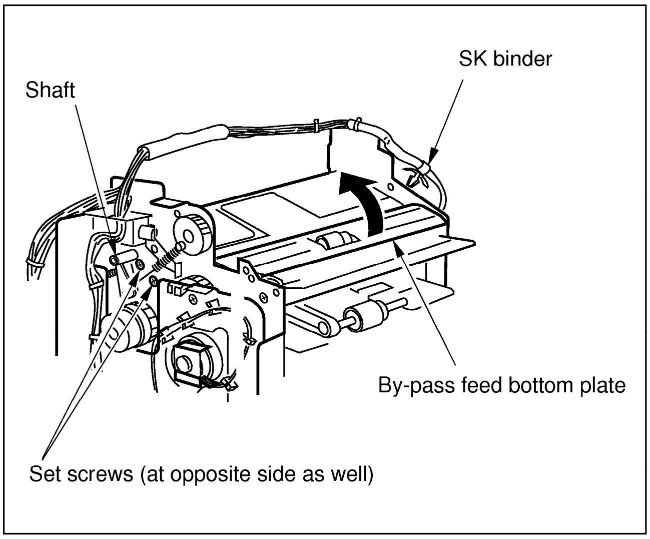
(5) Remove the four set screws, then remove the by-pass feed top plate.


Set screws (at opposite side as well)
By-pass feed top plate

(6) Grasp the base of the SK binder of the wires with radio pliers, then push the SK binder outward and remove it.

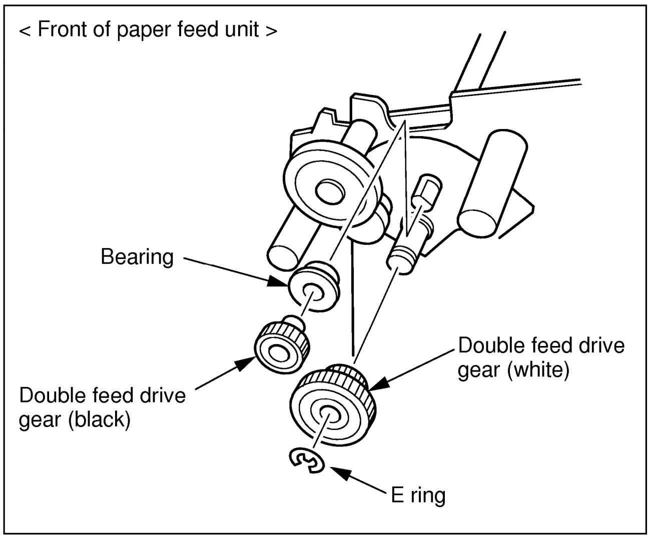
(7) Remove the four set screws, then free the by-pass feed bottom plate.

(8) Lift the by-pass feed bottom plate using the shaft side as a pivot.

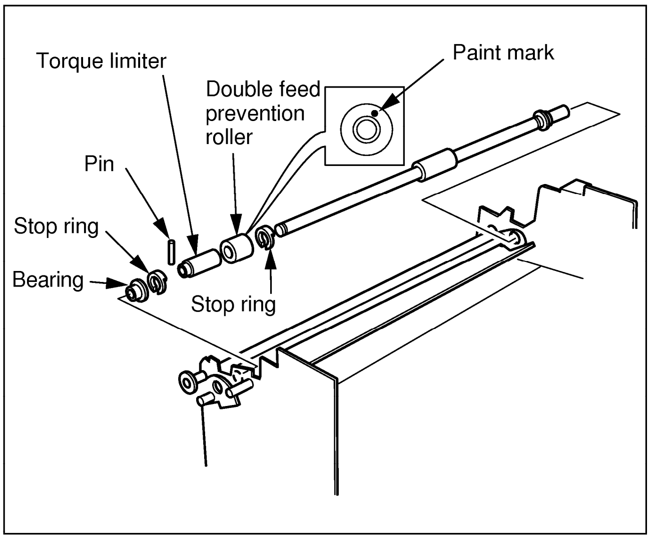

SK binder
Shaft
By-pass feed bottom plate
Set screws (at opposite side as well)

(9) Remove the E ring of front side, then remove the double feed drive gear (white).

(10) Remove the bearing and double feed drive gear (black).


< Front of paper feed unit >
Bearing
Double feed drive gear (white)
Double feed drive gear (black)
E ring

(11) Remove the two stop rings, bearing and pin, then remove the torque limiter and the double feed prevention roller.


Torque limiter
Paint mark
Double feed prevention roller
Pin
Stop ring
Bearing
Stop ring

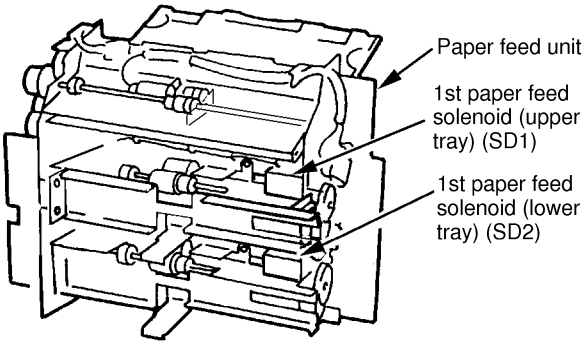
(12) Re-install the above parts in the opposite sequence to removal.

Caution: Ensure that the mounting direction of the rubber is correct.

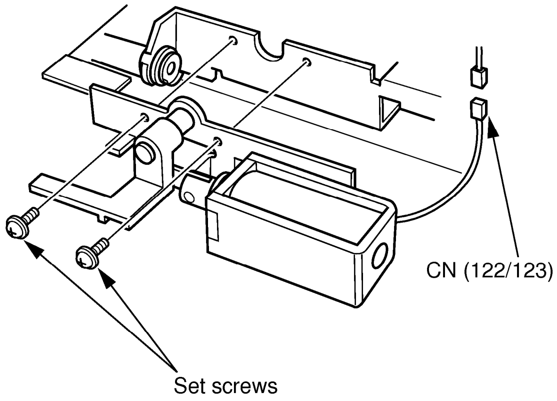
5. Replacing the 1st Paper Feed Solenoids (upper and lower trays)

a. Procedure

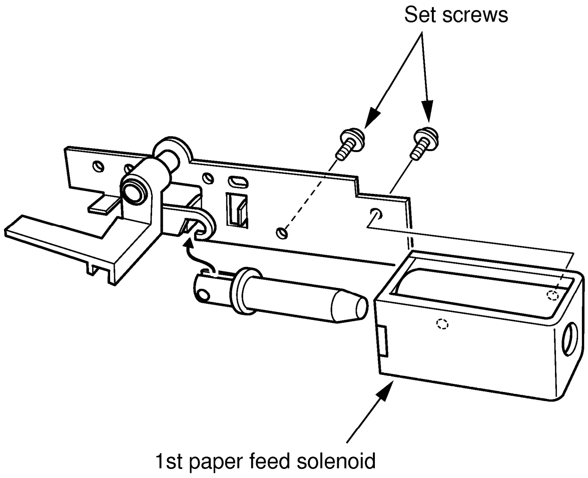
(1) Remove the paper feed unit.


Paper feed unit
1st paper feed solenoid (upper tray) (SD1)
1st paper feed solenoid (lower tray) (SD2)

(2) Remove the two set screws and the connector (CN122 or CN123) of the solenoid, then remove the solenoid unit.


CN (122/123)
Set screws

(3) Remove the two set screws, then remove the 1st paper feed solenoid.


Set screws
1st paper feed solenoid

(4) Re-install the above parts in the opposite sequence to removal.

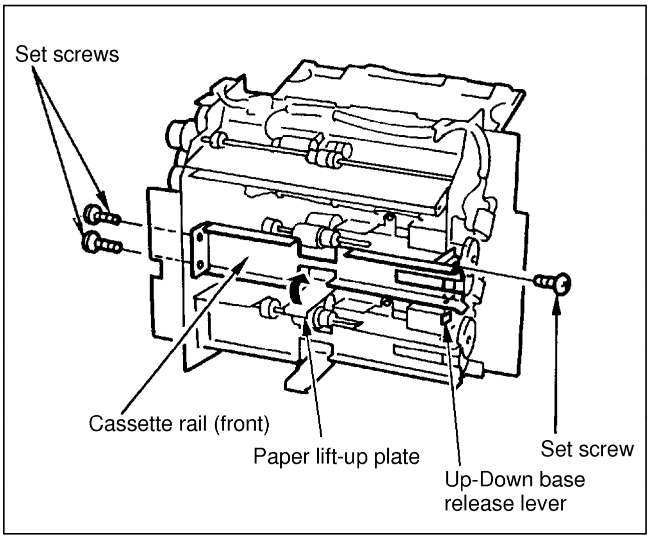
6. Replacing the Rubber of the Upper Paper Feed Roller and the Feed Roller

a. Procedure

(1) Remove the paper feed unit.

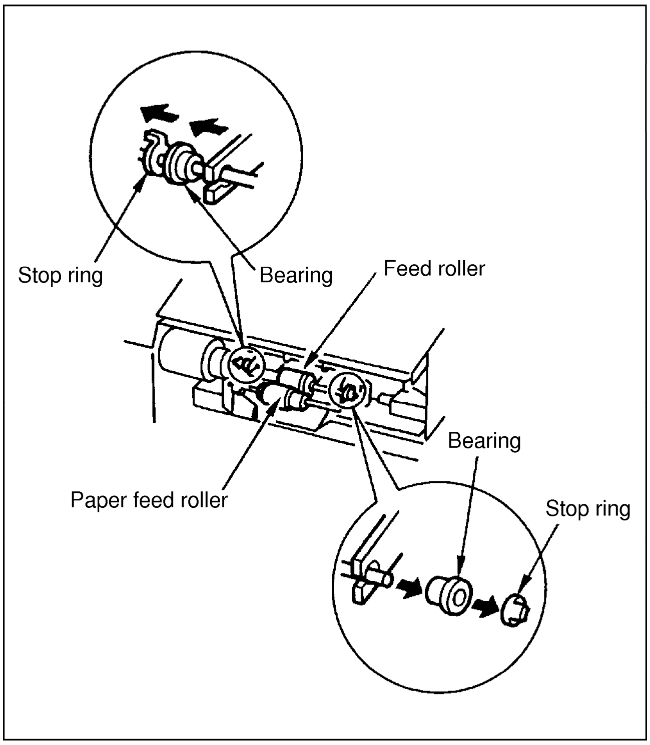
(2) Raise the paper lift-up plate while pushing the up-down base release lever.

(3) Remove the three set screws, then remove the upper cassette rail (front).


Set screws
Cassette rail (front)
Paper lift-up plate
Up-Down base release lever
Set screw

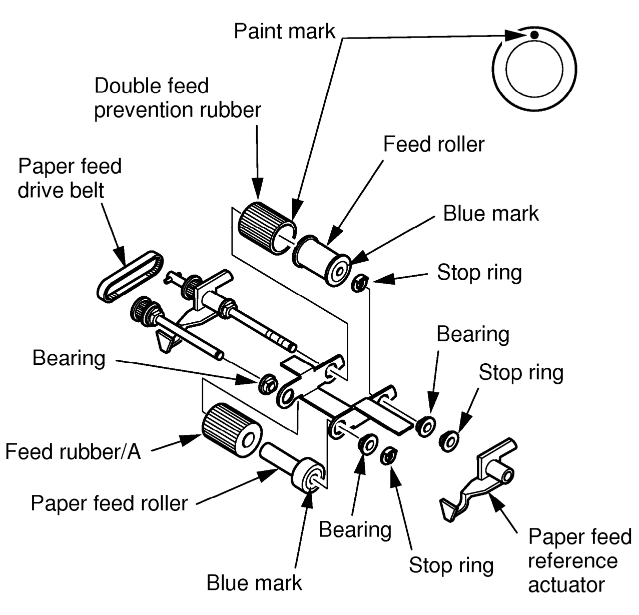
(4) Remove SD1 (1st paper feed SD (upper tray)).

(5) Remove the two Stop rings, then shift the left and right bearings to the outside, and remove the upper stage 1st paper feed roller unit.


Stop ring
Bearing
Feed roller
Bearing
Paper feed roller
Stop ring

(6) Pull out the three stop rings, the three bearings, the paper feed reference actuator and the two shafts of the paper feed roller unit, then remove each roller.

(7) Remove the rubber from each roller (the feed rubber/A and the double feed prevention rubber).


Paint mark
Double feed prevention rubber
Feed roller
Paper feed drive belt
Blue mark
Stop ring
Bearing
Bearing
Stop ring
Feed rubber/A
Paper feed roller
Bearing
Stop ring
Paper feed reference actuator
Blue mark

(8) Re-install the above parts in the opposite sequence to removal.

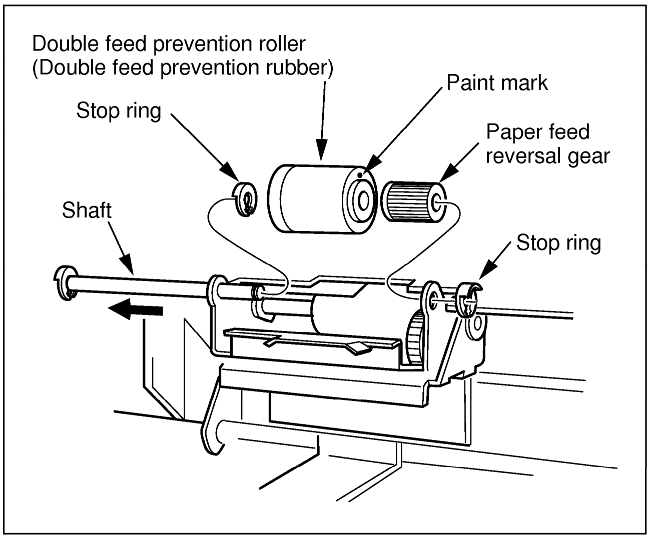
Caution:

1. Confirm that the mounting direction of each roller and rubber is correct.
2. Be sure to return the paper lifting plate to its original position.
   (When returning the paper lifting plate, push the up-down base release lever.)

7. Replacing the Rubber of the Upper Stage Paper Feed Double Feed Prevention Roller (double feed prevention rubber)

a. Procedure

(1) Remove the paper feed roller.
(2) Remove the upper stage cassette rail (front).
(3) Remove the two stop rings, then remove the feed roller unit. (Refer to the description of replacing the upper stage paper feed roller and the feed roller rubber.)
(4) Remove the two stop rings, then pull out the shaft and remove the double feed prevention roller together with the paper feed reversal gear.


Double feed prevention roller
(Double feed prevention rubber)
Paint mark
Stop ring
Paper feed reversal gear
Shaft
Stop ring

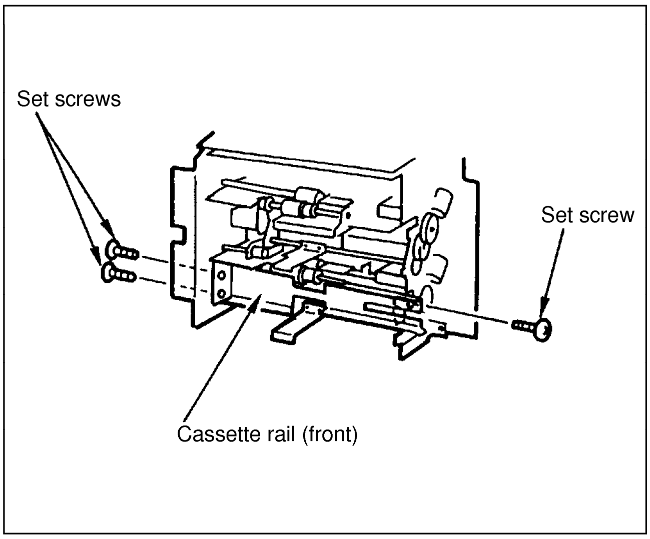
(5) Remove the double feed prevention rubber from the double feed prevention roller.
(6) Re-install the above parts in the opposite sequence to removal.

Caution: Ensure that the mounting direction of each roller rubber is correct.

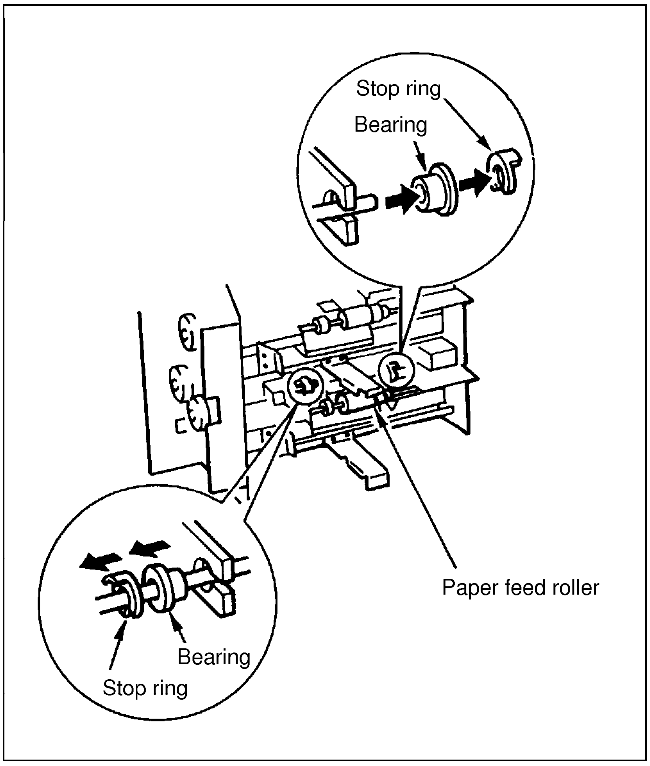
8. Replacing the Rubber for the Lower Paper Feed Roller and the Feed Roller

a. Procedure

(1) Remove the paper feed unit.
(2) Remove the upper cassette rail (front).
(3) Remove the three set screws, then remove the lower cassette rail (front).

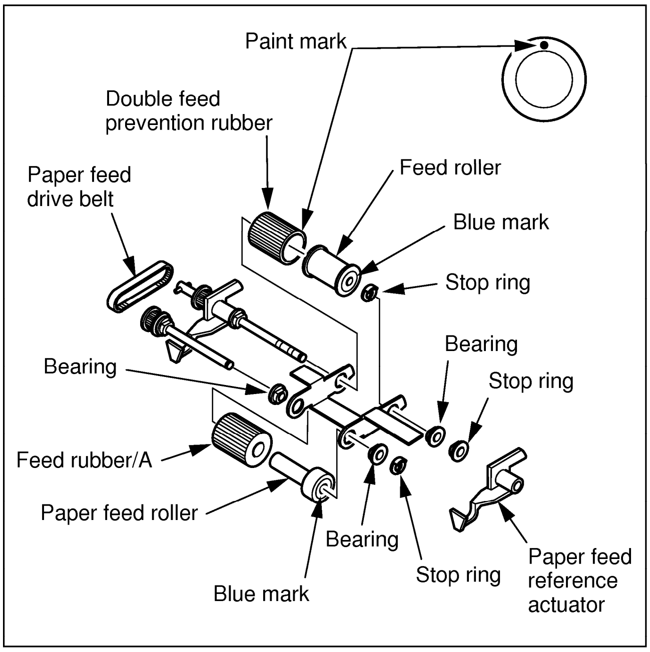

Set screws
Set screw
Cassette rail (front)

(4) Remove the 1st paper feed solenoid (lower tray).
(5) Remove the two stop rings, then shift the left and right bearings to the outside, and remove the lower stage 1st paper feed roller unit.


Stop ring
Bearing
Paper feed roller
Bearing
Stop ring

(6) Pull out the three stop rings, the three bearings, the paper feed reference actuator and the two shafts of the paper feed roller unit, then remove each roller.

(7) Remove the rubber from each roller (the feed rubber/A and the double feed prevention rubber).


Paint mark
Double feed prevention rubber
Paper feed drive belt
Feed roller
Blue mark
Stop ring
Bearing
Stop ring
Bearing
Feed rubber/A
Paper feed roller
Bearing
Stop ring
Paper feed reference actuator
Blue mark

(8) Re-install the above parts in the opposite sequence to removal.

Caution:

1. Confirm that the mounting direction of each roller and rubber is correct.
2. Be sure to return the paper lifting plate to its original position.
   (When returning the lifting plate, push the up-down base release lever.)

9. Replacing the Lower Stage Paper Feed Double Feed Prevention Roller Rubber (double feed prevention rubber)

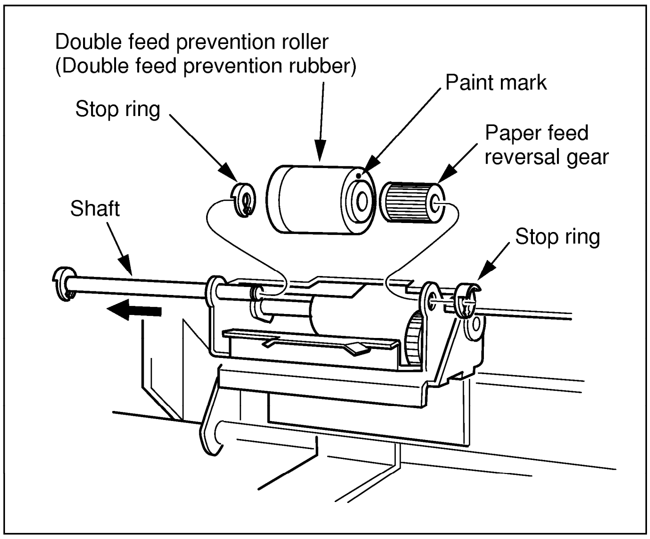
a. Procedure

(1) Remove the paper feed unit.

(2) Remove the lower cassette rails (front).

(3) Remove the two stop rings, then remove the feed roller unit. (Refer to the description of replacing the upper stage paper feed roller and the feed roller rubber.)

(4) Remove the two stop rings, then pull out the shaft and remove the double feed prevention roller together with the paper feed reversal gear.


Double feed prevention roller
(Double feed prevention rubber)
Paint mark
Stop ring
Paper feed reversal gear
Shaft
Stop ring

(5) Remove the double feed prevention rubber from the double feed prevention roller.

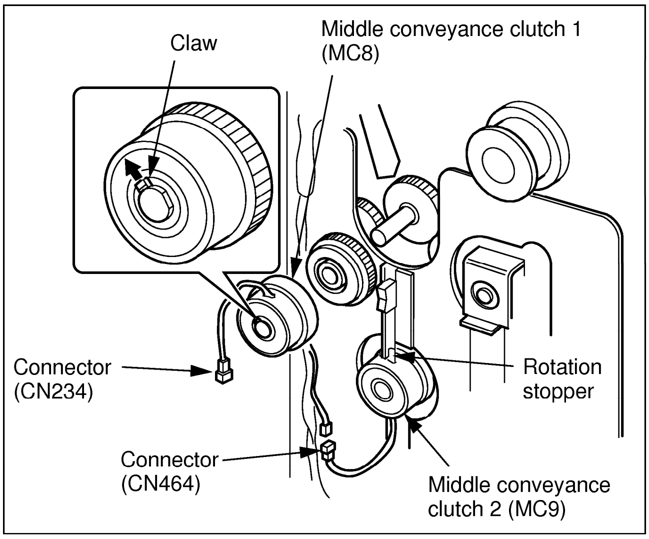
(6) Re-install the above parts in the opposite sequence to removal.

Caution: Ensure that the mounting direction of the rubber is correct.

10.Replacing the Middle Conveyance Clutch 1/2

a. Procedure

(1) Remove the paper feed unit.
(2) Disconnect each connector (CN234 and CN464).
(3) Remove the middle conveyance clutches 1/2 (MC8 and MC9) while pulling the claw outward,


Claw
Middle conveyance clutch 1 (MC8)
Connector (CN234)
Rotation stopper
Connector (CN464)
Middle conveyance clutch 2 (MC9)

(4) Re-install the above parts in the opposite sequence to removal.
(Push the end of the clutch rotation stopper against the plate.)

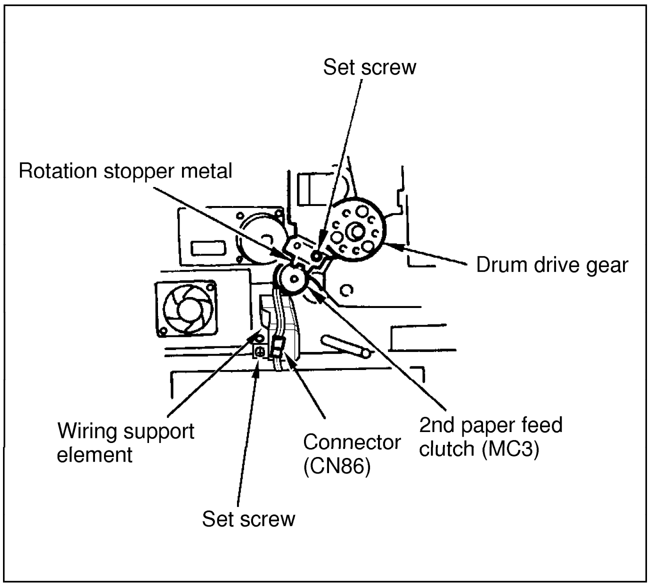
11.Removing and Re-installing the 2nd Paper Feed Unit

⚠Caution: Be sure that the power cord has been unplugged from the power outlet.

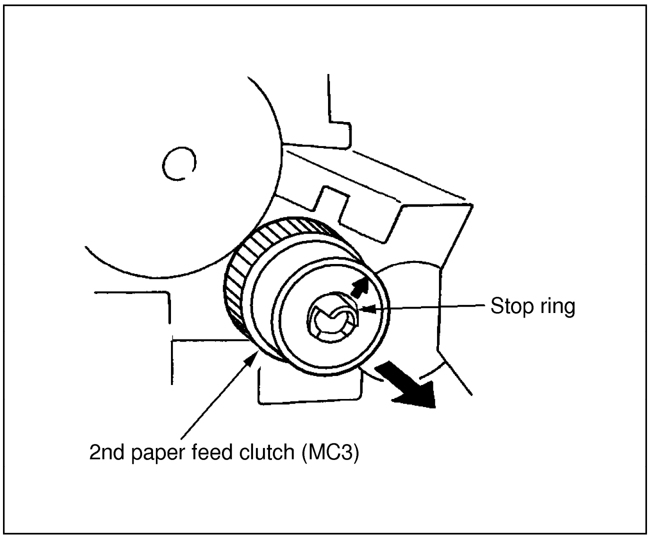
a. Procedure

(1) Remove the drum unit, transfer/separation corona unit, and the paper feed unit.
(2) Remove the flywheel.
(3) Disconnect the connector (CN86).
(4) Remove the set screw, then remove the wiring support element.
(5) Remove the set screw, then remove the rotation stopper metal of the 2nd paper feed clutch (MC3).

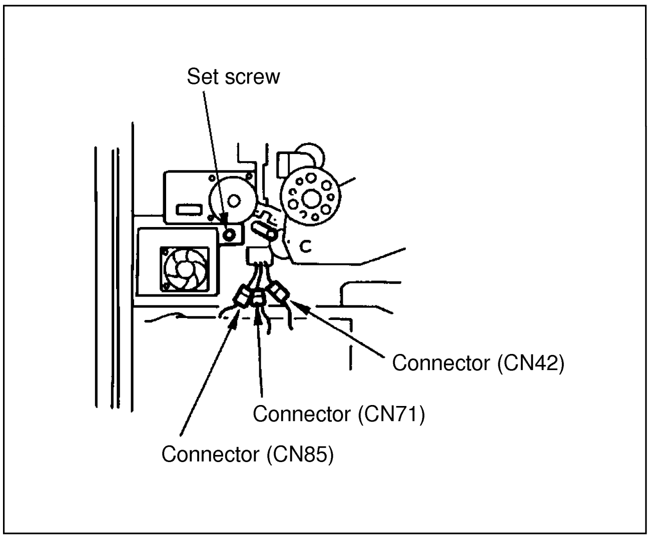
Caution: DO NOT touch the drum drive gear with a screwdriver when removing the set screws.


Set screw
Rotation stopper metal
Drum drive gear
Wiring support element
Connector (CN86)
2nd paper feed clutch (MC3)
Set screw

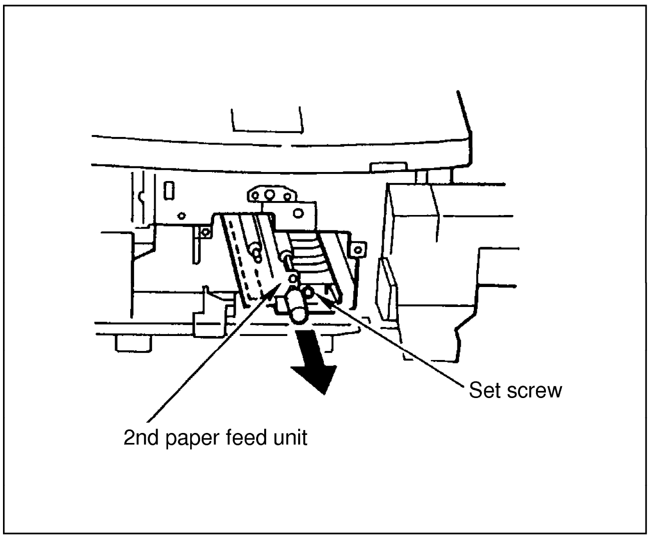
(6) Remove the stop ring, then remove the 2nd paper feed clutch (MC3).


Stop ring
2nd paper feed clutch (MC3)

(7) Remove the three relay connectors (CN42, 71 and 85).
(8) Remove the set screw.


Set screw
Connector (CN42)
Connector (CN71)
Connector (CN85)

(9) Remove the set screw on the front, then pull out and remove the 2nd paper feed unit.

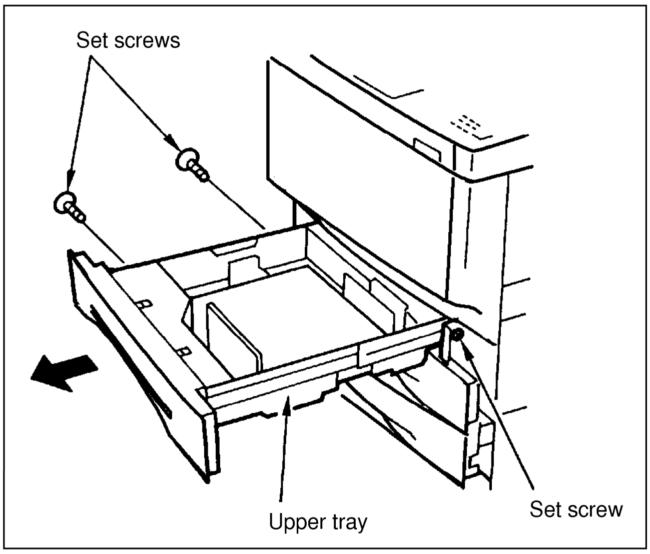

Set screw
2nd paper feed unit

(10) Re-install the 2nd paper feed unit in the opposite sequence to removal.

12. Removing and Re-installing the Upper Tray

a. Procedure

(1) Withdraw the upper tray, then remove the three set screws.
(2) Withdraw the upper tray further, then lift it out and remove the tray.

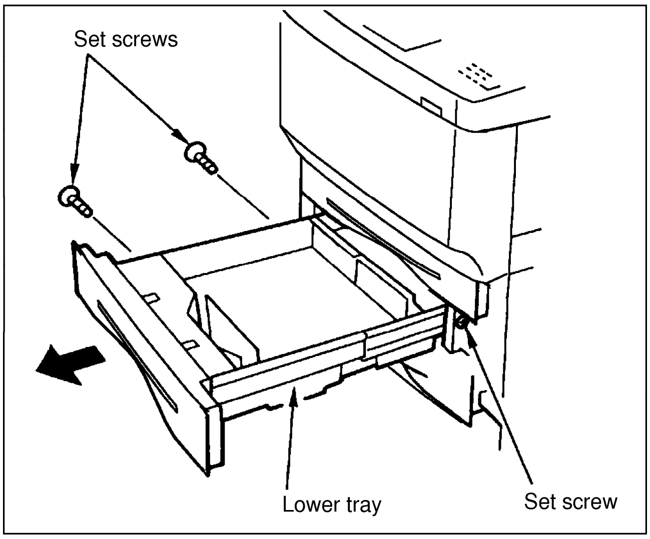

Set screws
Upper tray
Set screw

(3) Re-install the upper tray in the opposite sequence to removal.

13. Removing and Re-installing the Lower Tray

a. Procedure

(1) Withdraw the lower tray, then remove the three set screws.
(2) Withdraw the lower tray further, then lift it out and remove the tray.


Set screws
Lower tray
Set screw

(3) Re-install the lower tray in the opposite sequence to removal.

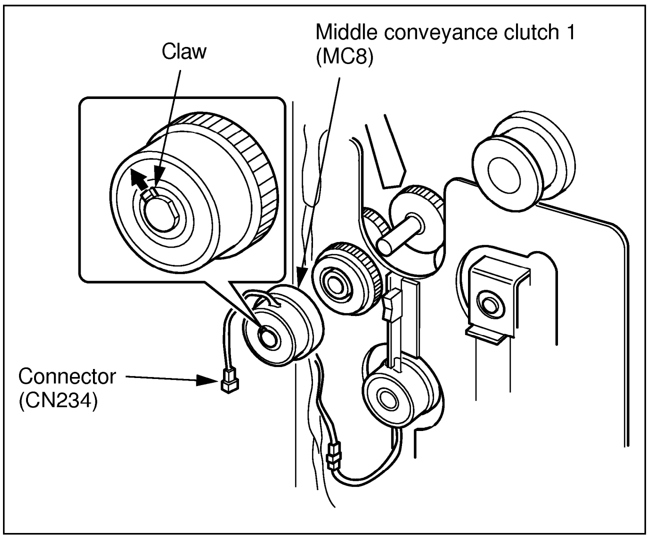
14. Replacing the Paper Feed Regulation Gear/ Upper

a. Procedure

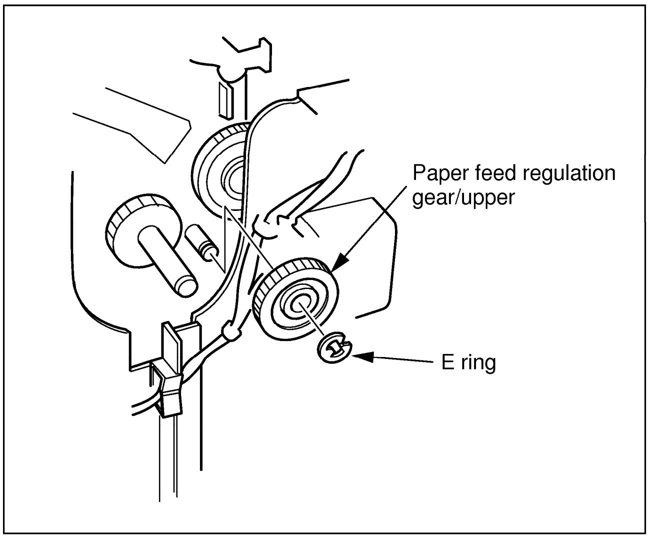
(1) Remove the paper feed unit.

(2) Remove the connector (CN234) from the middle conveyance clutch 1.

(3) Remove the middle conveyance clutch 1 (MC8) while pulling the claw outward.


Claw
Middle conveyance clutch 1 (MC8)
Connector (CN234)

(4) Remove the E ring, and then remove the paper feed regulation gear/upper.


Paper feed regulation gear/upper
E ring

(5) Re-install the above parts in the opposite sequence to removal. (Push the end of the rotation stopper of the clutch against the plate.)

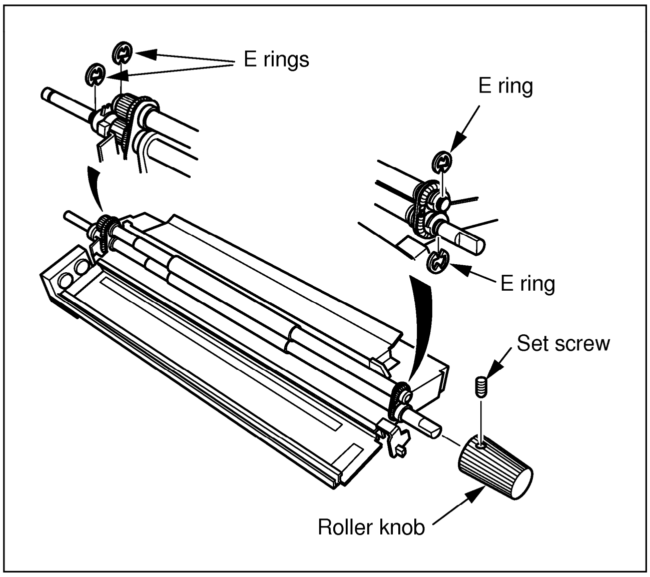
15. Replacing the 2nd Paper Feed Roller (Upper/ Lower)

a. Procedure

(1) Remove the 2nd paper feed unit.

(2) Remove the set screw, then remove the roller knob.

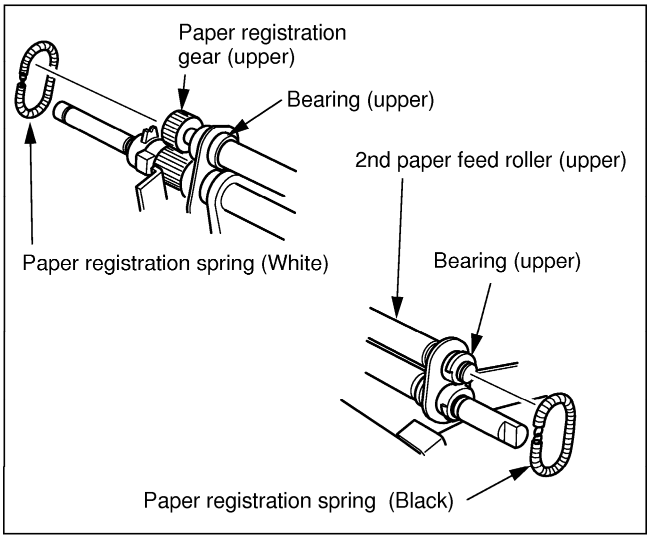
(3) Remove the two E rings from each 2nd paper feed roller.


E rings
E ring
E ring
Set screw
Roller knob

(4) Remove the two paper registration springs (front and rear).

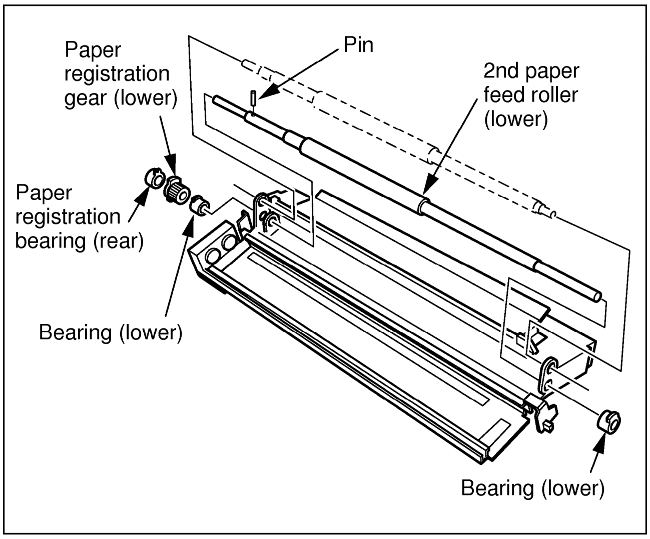
Caution: When installing and removing the registration springs, ensure that the hooks on the ends of the registration spring are engaged with each other.

(5) Remove the paper registration gear (upper) and the two bearings (upper), then remove the 2nd paper feed roller (upper).


Paper registration gear (upper)
Bearing (upper)
2nd paper feed roller (upper)
Paper registration spring (White)
Bearing (upper)
Paper registration spring (Black)

(6) Remove the paper registration bearing (rear) and paper registration bearing (lower).

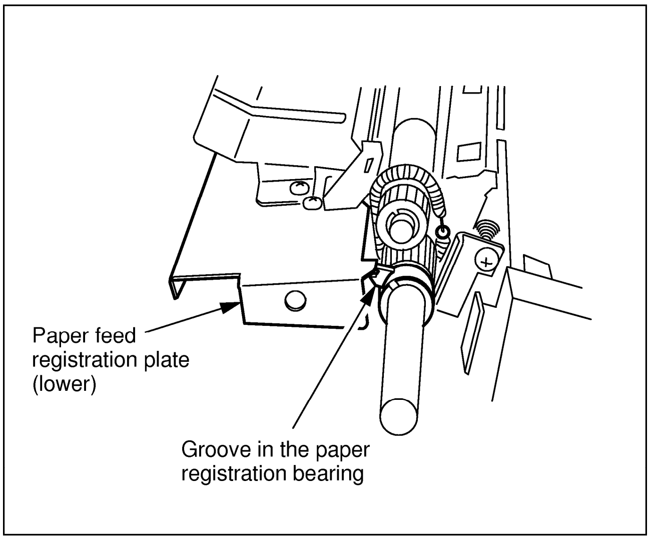
(7) Remove the two bearings (lower), then remove the 2nd paper feed roller (lower).


Paper registration gear (lower)
Pin
2nd paper feed roller (lower)
Paper registration bearing (rear)
Bearing (lower)
Bearing (lower)

(8) Re-install the above parts in the opposite sequence to removal.

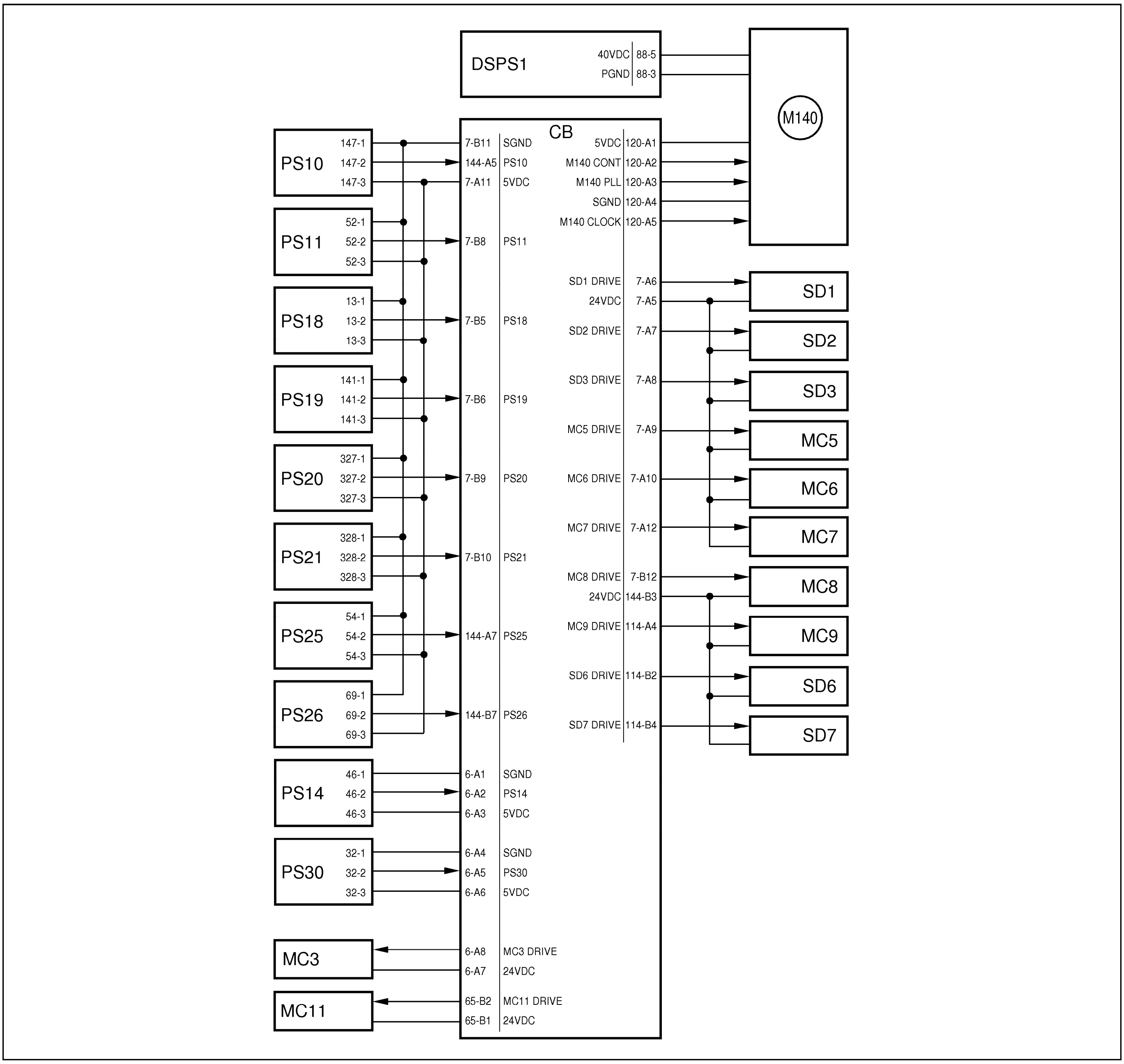
Caution:

1. Do not install the paper registration springs front (black), rear (white) in the reversed position.
2. The paper feed registration plate (lower) must enter the paper registration bearing groove. Also, the groove side of the bearing must be on the inside.


Paper feed registration plate (lower)
Groove in the paper registration bearing

3. Each flange of bearing (upper) and bearing (lower) must face outwards.

[4] Paper Feed Control


DSPS1
40VDC 88-5
PGND 88-3
M140
CB
PS10 147-1 147-2 147-3
7-B11 SGND
144-A5 PS10
7-A11 5VDC
PS11 52-1 52-2 52-3
7-B8 PS11
PS18 13-1 13-2 13-3
7-B5 PS18
PS19 141-1 141-2 141-3
7-B6 PS19
PS20 327-1 327-2 327-3
7-B9 PS20
PS21 328-1 328-2 328-3
7-B10 PS21
PS25 54-1 54-2 54-3
144-A7 PS25
PS26 69-1 69-2 69-3
144-B7 PS26
PS14 46-1 46-2 46-3
6-A1 SGND
6-A2 PS14
6-A3 5VDC
PS30 32-1 32-2 32-3
6-A4 SGND
6-A5 PS30
6-A6 5VDC
MC3
6-A8 MC3 DRIVE
6-A7 24VDC
MC11
65-B2 MC11 DRIVE
65-B1 24VDC
5VDC 120-A1
M140 CONT 120-A2
M140 PLL 120-A3
SGND 120-A4
M140 CLOCK 120-A5
SD1 DRIVE 7-A6
24VDC 7-A5
SD1
SD2 DRIVE 7-A7
SD2
SD3 DRIVE 7-A8
SD3
MC5 DRIVE 7-A9
MC5
MC6 DRIVE 7-A10
MC6
MC7 DRIVE 7-A12
MC7
MC8 DRIVE 7-B12
24VDC 144-B3
MC8
MC9 DRIVE 114-A4
MC9
SD6 DRIVE 114-B2
SD6
SD7 DRIVE 114-B4
SD7

The 1st paper feed takes place as a result of the transmission of drive force from M140 (LCT paper feed) via MC5 (paper feed (upper tray)), MC6 (paper feed (lower tray)) and MC7 (by-pass paper feed) to the respective paper feed rollers. At this time, the paper feed rollers are not touching the paper, hence the swivel roller and the by-pass plate are moved up and down by SD1 (1st paper feed (upper tray), SD2 (1st paper feed (lower tray)) and SD3 (by-pass 1st paper feed), causing each roller to touch the paper. Control of each roller is carried out by the CB (control board). The 2nd paper feed is carried out by MC3 (2nd paper feed). Related signals are PS10 (optics sync 2), PS11 (conveyance door), PS14 (registration), PS18 (no feed), PS19 (optics sync 1), PS20 (pre-try (upper)), PS21 (pre-try (lower)) and PS30 (by-pass).

1. Operation

a. 1st paper feed operation timing

(1) 1st copy start
Timing that is determined by the P counter from when the charging corona unit goes ON

(2) 2nd copy start
After the specified period from when PS14 (registration) goes ON for the 1st copy

(3) OFF timing
Specified count on the P counter

b. Middle conveyance control

The paper fed from the upper and lower trays is conveyed to the 2nd paper feed section by the drive force of M140 via MC8 (middle conveyance 1) and MC9 (middle conveyance 2). This conveyance section is also used for feeding paper from the ADU and LCT. However, it is not used for the by-pass paper feed.

(1) MC8, MC9 ON timing
When PS20 or PS21 is ON.

(2) MC8, MC9 OFF timing
After the specified period from when PS14 goes ON

c. 2nd paper feed control

The paper conveyed to the 2nd paper feed section stops after the specified period from when PS14 (registration) goes ON (loop formation). MC11 (assist drive) turns ON when feeding paper from the 2nd paper feed section to maintain a steady loop of the paper. As a result, the drive force of the middle conveyance roller switches from M140 (LCT paper feed) to M1 (main).

(1) MC3, MC11 ON timing
After the specified period from when PS18 goes ON, or after the specified period from when MC7 (by-pass paper feed) goes ON

2. Signals

a. Input signals

(1) PS10 (PS10 → CB)
During continuous paper feed from the LCT/ADU, CB temporarily stops paper feed at the specified position past PS10. Paper feed restarts after the trailing edge of the previously fed paper has passed PS18 (no feed).

(2) PS11 (PS11 → CB)
Conveyance door open/close detection signal
[L]: Door is closed.
[H]: Door is open.

(3) PS14 (PS14 → CB)
Paper detection signal at the paper feed temporary stop position
PS14 goes ON and outputs [L] when paper is detected at the paper feed temporary stop position.

(4) PS18 (PS18 → CB)
When the tray, LCT or ADU is used, the image data from the E-RDH determines the laser write timing. Laser write starts after the specified period from when PS18 goes ON.
[L]: Paper is detected.
[H]: Paper is not detected.

(5) PS19 (PS19 → CB)
During A4/B5 continuous paper feed from the LCT1500, CB temporarily stops paper feed at the specified position past PS19. Paper feed restarts after the trailing edge of the previously fed paper has passed PS18 (no feed).

(6) PS20/21 (PS20/21 → CB)
Sensor which determines the operation timing of MC8 (middle conveyance 1) (paper is conveyed as far the 2nd paper feed section)
MC8 goes ON when PS20 or PS21 is ON.

(7) PS25/26 (PS25/26 → CB)
Paper detection signal at the pre feed stop position
[L]: Paper is detected.
[H]: Paper is not detected.

(8) PS30 (PS30 → CB)
Jam detection sensor
[L]: Paper is detected.
[H]: Paper is not detected.

b. Output signals

(1) SD1 DRIVE (CB → SD1)
SD1 drive control signal
[L]: SD1 ON
[H]: SD1 OFF

(2) SD2 DRIVE (CB → SD2)
SD2 drive control signal
[L]: SD2 ON
[H]: SD2 OFF

(3) SD3 DRIVE (CB → SD3)
SD3 drive control signal
[L]: SD3 ON
[H]: SD3 OFF

(4) SD6 DRIVE (CB → SD6)
SD6 drive control signal
[L]: SD6 ON
[H]: SD6 OFF

(5) SD7 (CB → SD7)
SD7 drive control signal
[L]: SD7 ON
[H]: SD7 OFF

(6) MC3 DRIVE (CB → MC3)
MC3 drive control signal
[L]: MC3 ON
[H]: MC3 OFF

(7) MC5 DRIVE (CB → MC5)
MC5 drive control signal
[L]: MC5 ON
[H]: MC5 OFF

(8) MC6 DRIVE (CB → MC6)
MC6 drive control signal
[L]: MC6 ON
[H]: MC6 OFF

(9) MC7 DRIVE (CB → MC7)
MC7 drive control signal
[L]: MC7 ON
[H]: MC7 OFF

(10) MC8 DRIVE (CB → MC8)
MC8 drive control signal
[L]: MC8 ON
[H]: MC8 OFF

(11) MC9 DRIVE (CB → MC9)
MC9 drive control signal
[L]: MC9 ON
[H]: MC9 OFF

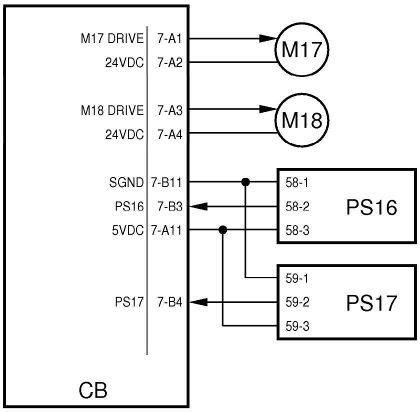
(12) MC11 DRIVE (CB → SD7)
Drive control signal of MC11
[L]: MC11 ON
[H]: MC11 OFF

(13) M140 CONT (CB → M140)
M140 ON/OFF control signal
[L]: M140 ON
[H]: M140 OFF

(14) M140 PLL (CB→ M140)
M140 PLL speed stabilizing signal

(15) M140 CLOCK (CB → M140)
M140 speed instruction signal

[5] Paper Up-down Control



When a paper feed tray is loaded, M17 (upper tray) or M18 (lower tray) goes ON for a specified period, raising the bottom plate in the tray.
Related signals are PS16 (upper tray upper limit detection) and PS17 (lower tray upper limit detection).

1. Operation

a. ON timing

M17 or M18 is turned ON by the switches on the paper size detection board going ON.

b. OFF timing

M17 or M18 goes OFF by PS16 or PS17 going ON.

2. Signals

a. Input signals

(1) PS16 (PS16 → CB)
Upper tray upper limit detection signal
The paper in the upper tray is raised by M17, and when it reaches the upper limit position, this signal becomes [L].

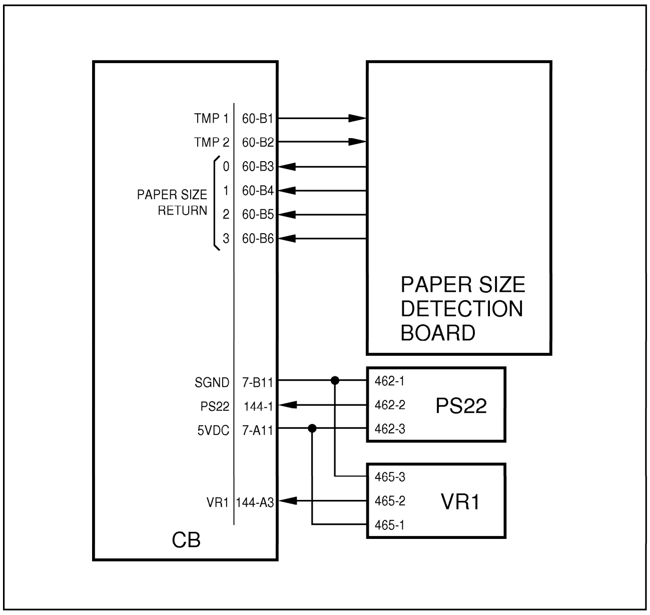
(2) PS17 (PS17 → CB)
Lower tray upper limit detection signal
The paper in the upper tray is raised by M18, and when it reaches the upper limit position, this signal becomes [L].

b. Output signals

(1) M17 DRIVE (CB → M17)
M17 drive control signal
[L]: M17 ON
[H]: M17 OFF

(2) M18 DRIVE (CB → M18)
M18 drive control signal
[L]: M18 ON
[H]: M18 OFF

[6] Paper Size Detection Control



The size of the paper in the upper tray is detected as a result of the matrix circuit on the CB (control board) detecting the signal from the paper size detection board. The size of paper in the by-pass feed tray is detected by the CB according to the combination of PS22 (by-pass feed paper size detection) and VR1 (by-pass paper size detection).

1. Operation

a. Tray (upper) paper size detection

The paper size detection board has four switches which detect the position of the side and rear guides in the tray (upper). The paper size is detected according to the particular ON-OFF combination of these switches.
The relation between the state of the switches ON the paper size detection board and the paper size is shown below.

Paper size	A	B	C	D
A3	OFF	OFF	OFF	ON
B4	ON	OFF	OFF	ON
A4	OFF	ON	OFF	ON
B5	OFF	ON	ON	OFF
B6	OFF	OFF	ON	OFF
A4R	ON	ON	ON	OFF
B5R	OFF	ON	OFF	OFF

b. Tray (lower) paper size setting

The size of paper in the tray (lower) is set in the 25 mode. (Refer to the Adjustment section.)

c. Detection of size of paper in the by-pass feed tray

The size in the lengthwise direction of the paper in the by-pass tray is detected by the ON/OFF state of PS22, and the size in the widthwise direction is detected by the resistance of VR1 which varies according to the position of the guide on the tray.

2. Signals

a. Input signals

(1) PAPER SIZE RETURN 0 to 3 (Paper size detection board → CB)
Paper size detection switch ON/OFF signal

(2) PS22 (PS11 → CB)
By-pass tray lengthwise direction paper size detection signal
[L]: A3, B4 size or larger
[H]: Other than above

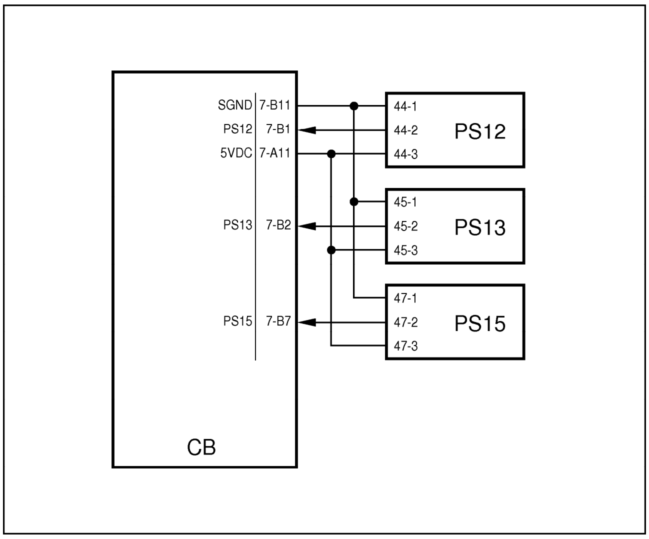
(3) VR1 (VR1 → CB)
By-pass tray widthwise direction paper size detection signal

b. Output signals

(1) TEMP 1 (CB → Paper size detection board)
Upper tray paper size detection timing pulses

(2) TEMP 2 (CB → Paper size detection board)
Lower tray existence detection timing pulses

[7] No Paper Detection Control


SGND
PS12
5VDC
PS13
PS15
7-B11
7-B1
7-A11
7-B2
7-B7
CB
44-1
44-2
44-3
PS12
45-1
45-2
45-3
PS13
47-1
47-2
47-3
PS15

No paper detection takes place by PS12 (upper tray no paper detection), PS13 (lower tray no paper detection) and PS15 (by-pass no paper detection) which are controlled by the CB (control board).

1. Operation

a. No paper detection control

When paper in the paper feed tray or the by-pass tray becomes empty, PS12, PS13 or PS15 goes ON. As a result, the corresponding LED on OB1 (operation board 1) lights, and a message is displayed on the INDICATING BOARD via to the OB1 (operation board 1).

2. Signals

a. Input signals

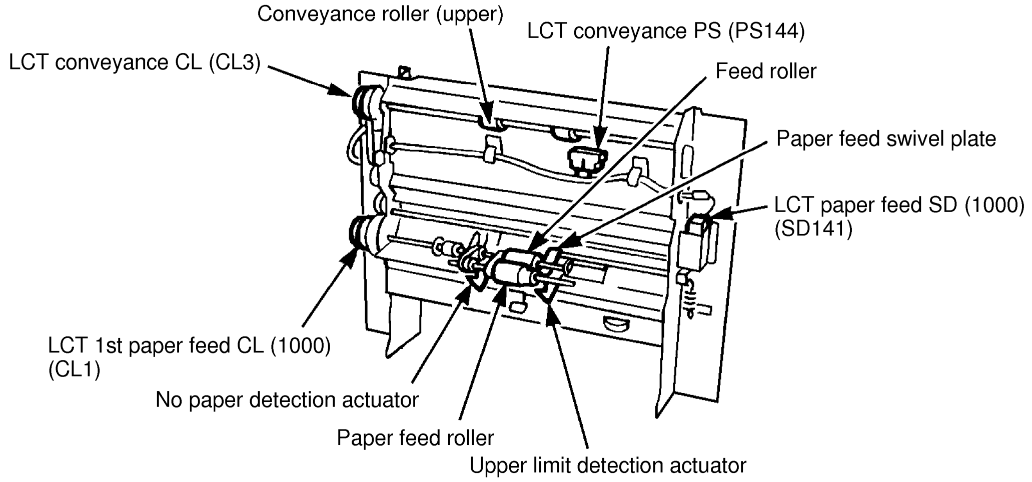
(1) PS12 (PS12 → CB)
Upper tray no paper detection signal
[L]: No paper in tray
[H]: Paper in tray

(2) PS13 (PS13 → CB)
Lower tray no paper detection signal
[L]: No paper in tray
[H]: Paper in tray

(3) PS15 (PS15 → CB)
By-pass tray no paper detection signal
[L]: No paper in tray
[H]: Paper in tray

LCT-1000 TRAY PAPER FEED/CONVEYANCE SECTION

[1] Composition


Conveyance roller (upper)
LCT conveyance PS (PS144)
LCT conveyance CL (CL3)
Feed roller
Paper feed swivel plate
LCT paper feed SD (1000)
(SD141)
LCT 1st paper feed CL (1000)
(CL1)
No paper detection actuator
Paper feed roller
Upper limit detection actuator

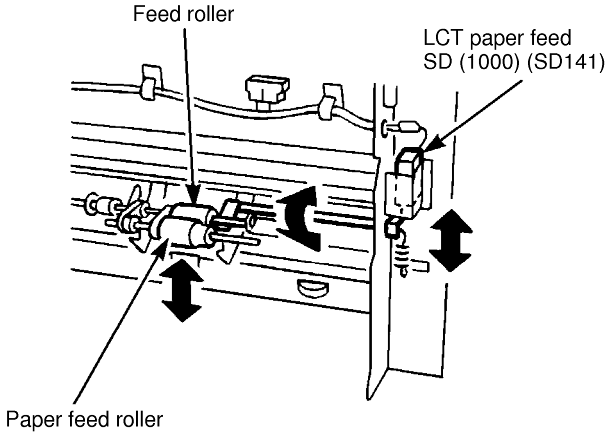
[2] Mechanisms

	Mechanism	Method
*1	Feed	Swivel roller
	1st paper feed	1st paper feed roller, paper feed solenoid, paper feed clutch
	Double feed prevention	Torque limiter
	No paper detection	Photosensor
	Paper size detection	None
	Paper conveyance	Roller conveyance
	Conveyance drive	Timing belt

***1: Swivel roller**

To prevent the paper feed roller from touching the paper and causing a paper jam when the paper tray is being removed, the paper feed roller is designed so that it drops down and touches the paper only when paper feed is taking place.

This operation takes place as a result of the LCT paper feed solenoid (1000) driving the paper feed swivel plate.


Feed roller
LCT paper feed
SD (1000) (SD141)
Paper feed roller

[3] Disassembly and Re-assembly

1. Removing and Re-installing the 1000 Tray Paper Feed/Conveyance Section

⚠Caution: Be sure that the power cord has been unplugged from the power outlet.

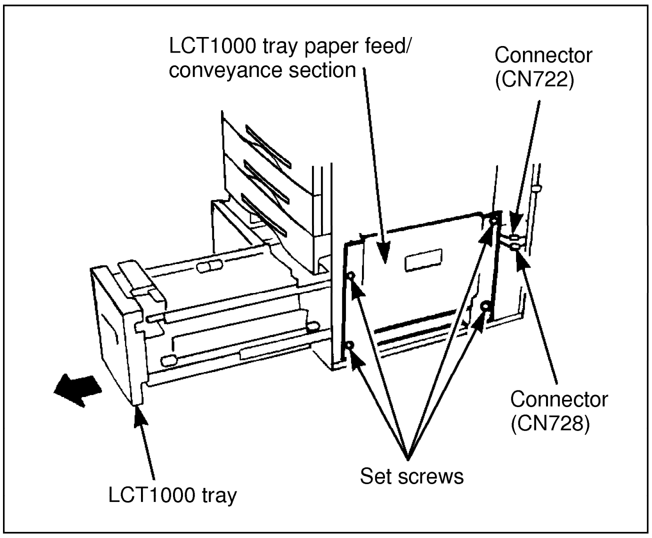
a. Procedure

(1) Withdraw the LCT1000 tray in the forward direction.

(2) Slacken the three set screws, then remove the right side lower cover.

(3) Disconnect the two relay connectors (CN722, 728).

(4) Remove the four set screws, then remove the LCT1000 paper feed/conveyance section.


LCT1000 tray paper feed/
conveyance section
Connector
(CN722)
Connector
(CN728)
Set screws
LCT1000 tray

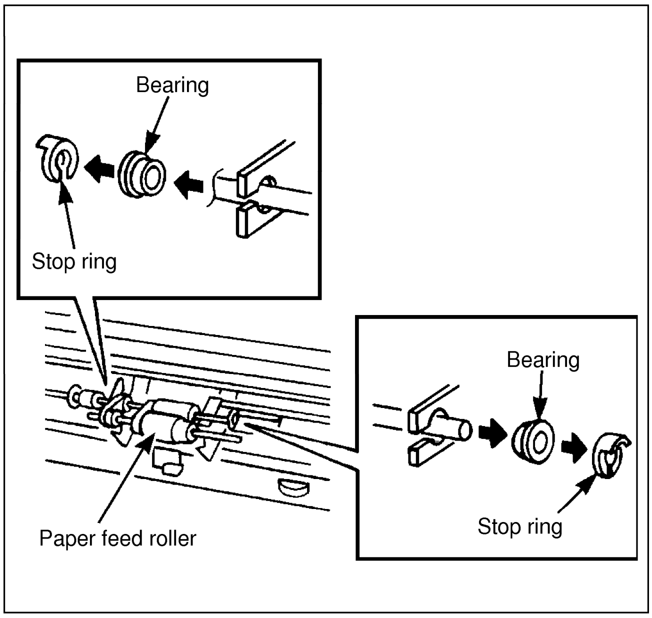
(5) Re-install the 1000 tray paper feed/conveyance section in the opposite sequence to removal.

2. Replacing the Rubber of the Paper Feed Roller and the Feed Roller

a. Procedure

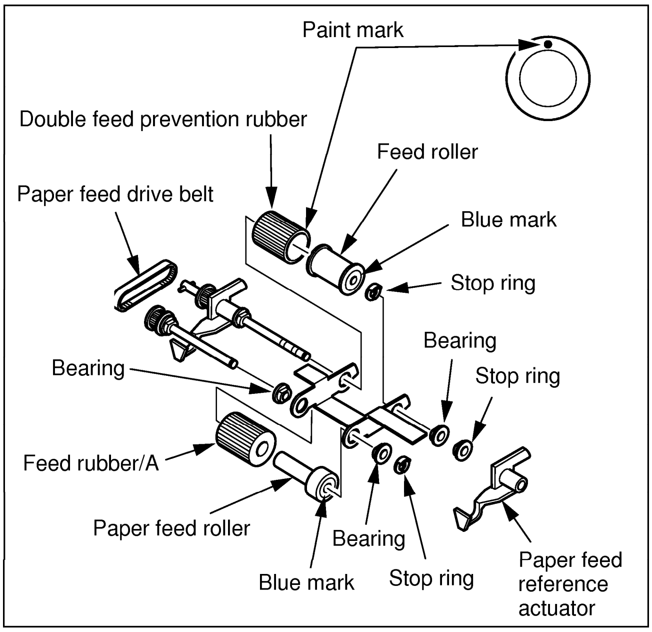
(1) Remove the LCT1000 paper feed/conveyance section.

(2) Remove the two stop rings, then shift the left and right bearings to the outside, and remove the paper feed roller unit.


Bearing
Stop ring
Bearing
Paper feed roller
Stop ring

(3) Pull out the three E rings, the three bearings, the paper feed reference actuator and the two shafts of the paper feed roller unit, then remove each roller.

(4) Remove the rubber from each roller. (the feed rubber A and the double feed prevention rubber)


Paint mark
Double feed prevention rubber
Feed roller
Paper feed drive belt
Blue mark
Stop ring
Bearing
Bearing
Stop ring
Feed rubber/A
Paper feed roller
Bearing
Blue mark
Stop ring
Paper feed
reference
actuator

(5) Re-install the above parts in the opposite sequence to removal.

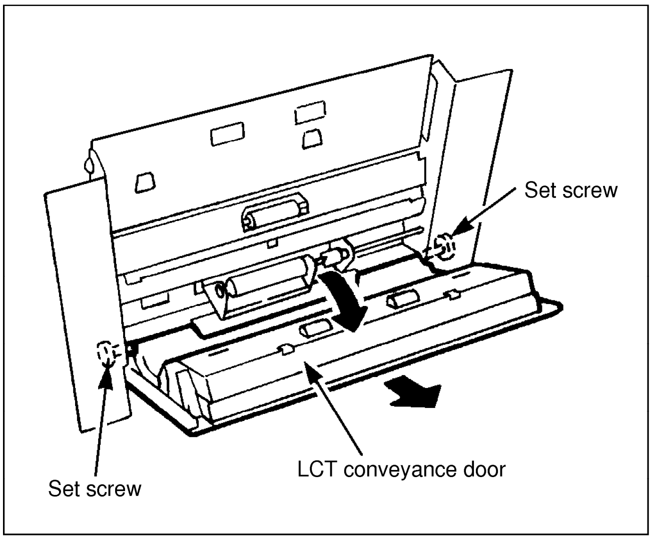
Caution: Ensure that the mounting direction of the rubber is correct.

3. Replacing the Rubber of the Double Feed Prevention Roller

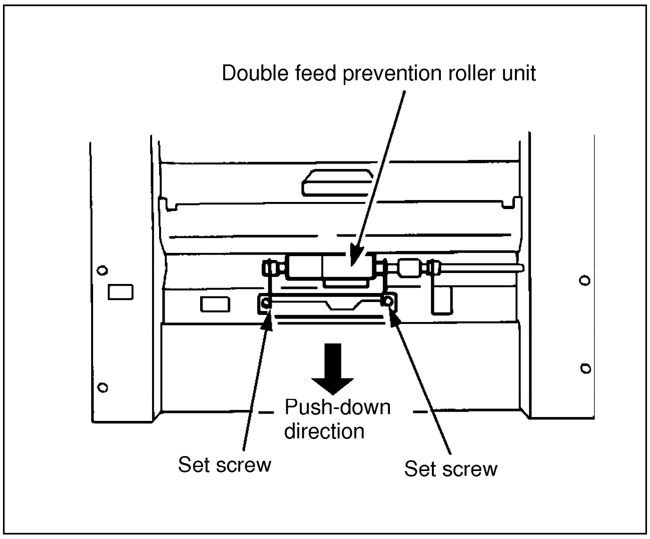
a. Procedure

(1) Remove the LCT1000 paper feed/conveyance section.

(2) Slacken the two set screws, then remove the LCT conveyance door.

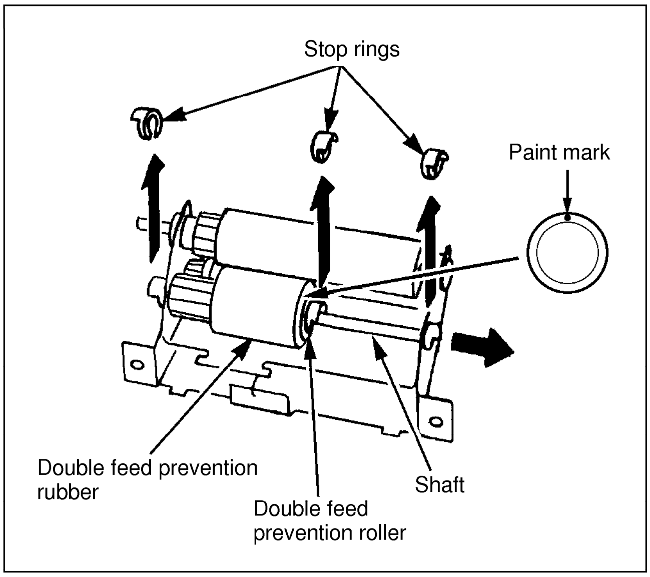

Set screw
Set screw
LCT conveyance door

(3) Remove the two set screws, and remove the double feed prevention roller unit. (When re-installing the double feed prevention roller unit, insert the two projections on the double feed prevention roller unit into the square holes, and push them downward to fix them in place.


Double feed prevention roller unit
Push-down direction
Set screw
Set screw

(4) Remove the three stop rings, then pull out the shaft, and remove the double feed prevention roller.

(5) Remove the double feed prevention rubber from the double feed prevention roller.


Stop rings
Paint mark
Double feed prevention rubber
Double feed prevention roller
Shaft

(6) Re-install the above parts in the opposite sequence to removal.

Caution: Ensure that the mounting direction of the rubber is correct.

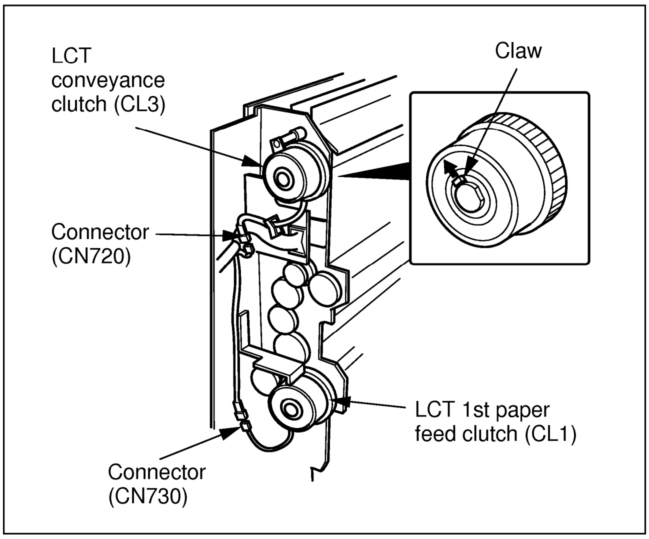
4. Replacing the LCT 1st Paper Feed Clutch (CL1) and LCT Conveyance Clutch (CL3)

a. Procedure

(1) Remove the LCT1000 paper feed/conveyance section.

(2) Disconnect the connectors (CN720 and CN730) of each paper feed clutch.

(3) Remove each paper feed clutch while pulling the claw outward.


LCT conveyance clutch (CL3)
Claw
Connector (CN720)
LCT 1st paper feed clutch (CL1)
Connector (CN730)

(4) Re-install the above parts in the opposite sequence to removal.

Caution: Do not forget to align the clutch with the rotation stopping pin.

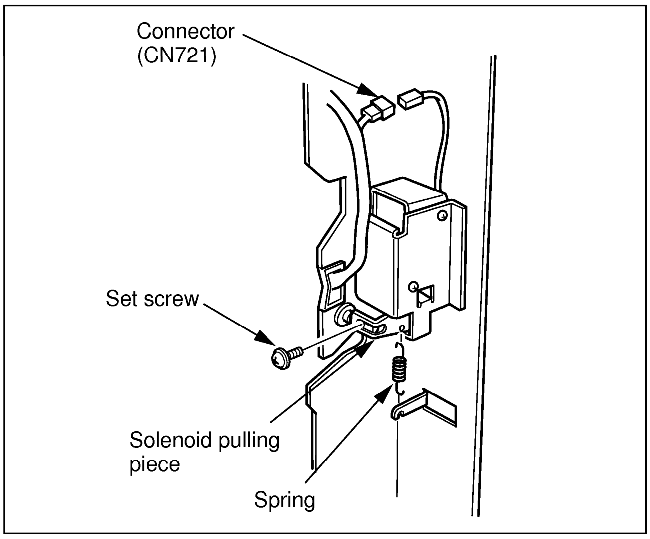
5. Replacing the LCT Paper Feed Solenoid (SD141)

a. Procedure

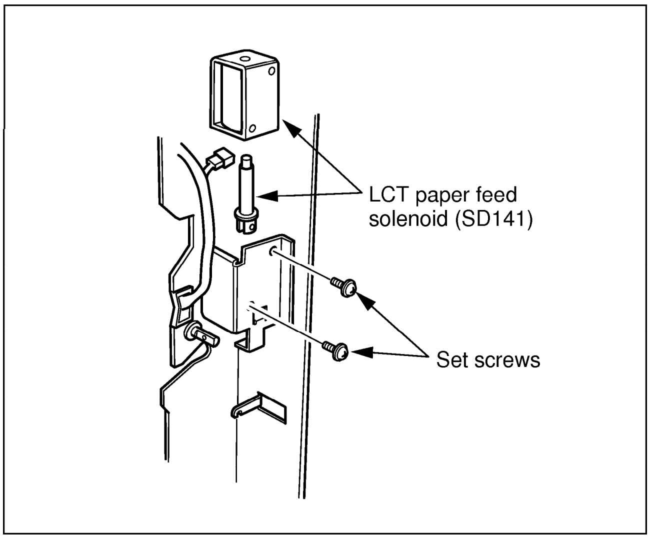
(1) Remove the LCT1000 paper feed/conveyance section.

(2) Disconnect the solenoid connector (CN721).

(3) Remove the set screw, then remove the solenoid pulling piece together with the spring.

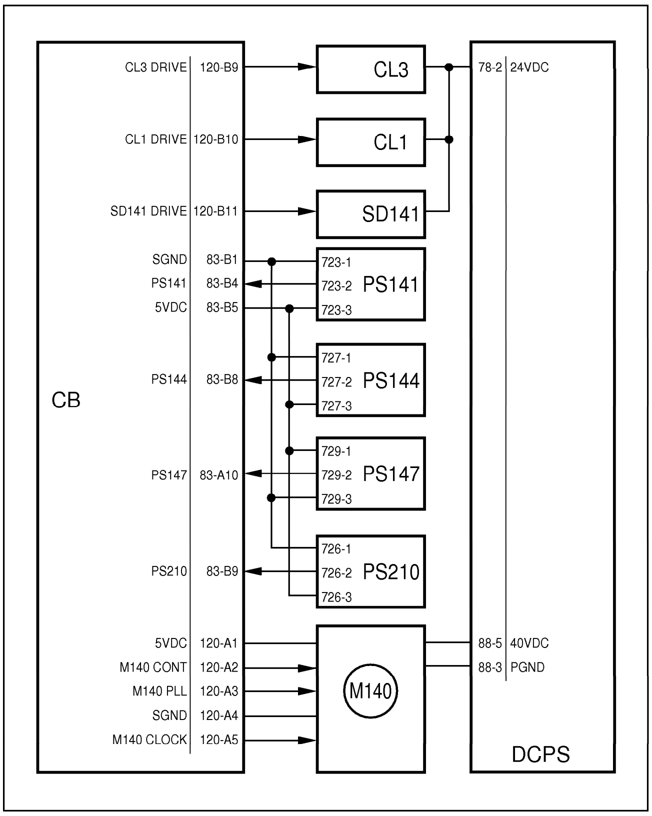

Connector (CN721)
Set screw
Solenoid pulling piece
Spring

(4) Remove the two set screws, then remove the LCT paper feed solenoid.


LCT paper feed solenoid (SD141)
Set screws

(5) Re-install the above parts in the opposite sequence to removal.

## [4] 1000 Tray Paper Feed/No Paper Detection Control


CB
CL3 DRIVE 120-B9
CL1 DRIVE 120-B10
SD141 DRIVE 120-B11
SGND 83-B1
PS141 83-B4
5VDC 83-B5
PS144 83-B8
PS147 83-A10
PS210 83-B9
5VDC 120-A1
M140 CONT 120-A2
M140 PLL 120-A3
SGND 120-A4
M140 CLOCK 120-A5
CL3
CL1
SD141
723-1
723-2 PS141
723-3
727-1
727-2 PS144
727-3
729-1
729-2 PS147
729-3
726-1
726-2 PS210
726-3
M140
78-2 24VDC
88-5 40VDC
88-3 PGND
DCPS

The 1st paper feed from the 1000 tray takes place as a result of the transmission of the rotational force of M140 (LCT paper feed) by means of CL1 (LCT 1st paper feed (1000)) to the paper feed roller. The paper feed roller does not touch the paper at this time, so SD141 (LCT 1st paper feed (1000)) swivels, bringing the paper feed roller into contact with the paper.

The fed paper is conveyed to the paper feed unit by the drive force from M140 which is transmitted to the conveyance roller via CL3 (LCT conveyance).

M140, CL1, CL3 and SD141 are driven by the CB (control board). Related signals are PS141 (LCT no paper detection (1000)), PS144 (LCT conveyance (1000)), PS147 (LCT pre feed (1000)), and PS210 (LCT pre-try (1000)).

1. Operation

a. 1st paper feed operation timing

(1) Start of paper feed for 1st copy
Timing determined by the P counter from when the charging corona unit goes ON

(2) Start of paper feed for 2nd copy
After the specified period from when PS14 (registration) goes ON during the 1st copy operation

(3) OFF timing
Specified count on the P counter

b. No paper detection control

When there is no more copy paper in the LCT1000 tray, PS141 goes ON, and a message is displayed on the indicating board.

2. Signals

a. Input signals

(1) PS141 (PS141 → CB)
No paper detection signal from the 1000 tray
[H]: No paper in tray
[L]: Paper in tray

(2) PS144 (PS144 → CB)
Paper passage detection signal from the 1000 tray conveyance section
This signal is [L] while paper is passing through the 1000 tray conveyance section.

(3) PS147 (PS147 → CB)
Paper detection signal at the pre feed stop position
[L]: Paper is detected.
[H]:Paper is not detected.

(4) PS210 (PS210 → CB)
1st paper feed detection signal from the 1000 tray
This signal becomes [L] when paper is detected.

b. Output signals

(1) M140 CONT (CB →M140)
M140 ON/OFF control signal
[H]: M140 OFF
[L]: M140 ON

(2) M140 PLL (CB → M140)
PLL speed stabilizing signal for M140

(3) M140 CLOCK (CB→ M140)
Speed instruction signal for M140

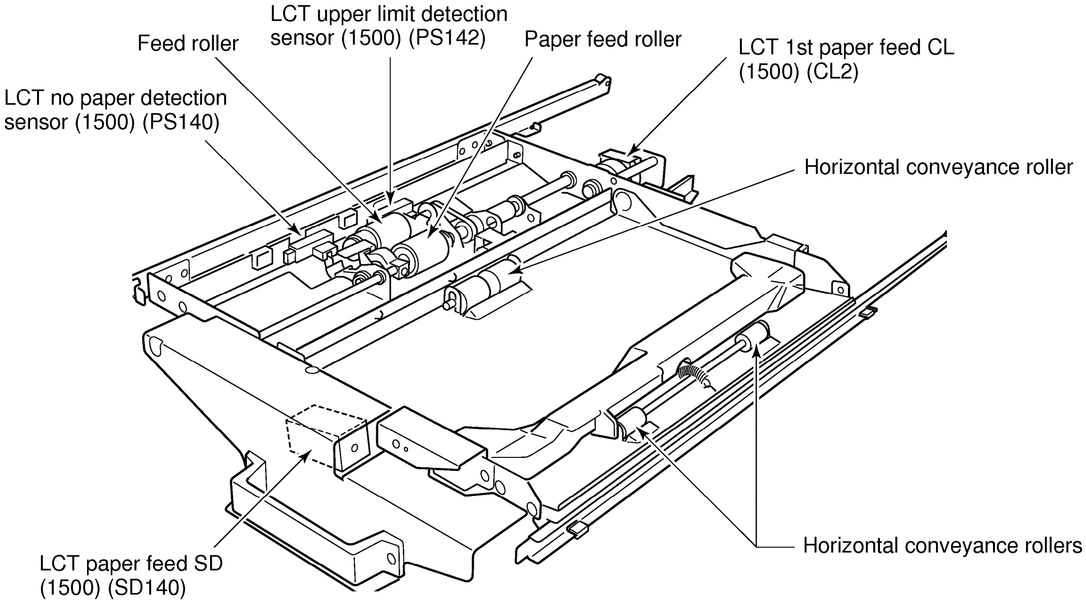
(4) CL1 DRIVE (CB → CL1)
ON/OFF drive signal for CL1
[H]: CL1 OFF
[L]: CL1 ON

(5) CL3 DRIVE (CB → CL3)
ON/OFF drive signal for CL3
[H]: CL3 OFF
[L]: CL3 ON

(6) SD141 DRIVE (CB → SD141)
ON/OFF drive signal for SD141
[H]: SD141 OFF
[L]: SD141 ON

LCT-1500 TRAY PAPER FEED/CONVEYANCE SECTION

[1] Composition


Feed roller
LCT upper limit detection sensor (1500) (PS142)
Paper feed roller
LCT 1st paper feed CL (1500) (CL2)
LCT no paper detection sensor (1500) (PS140)
Horizontal conveyance roller
Horizontal conveyance rollers
LCT paper feed SD (1500) (SD140)

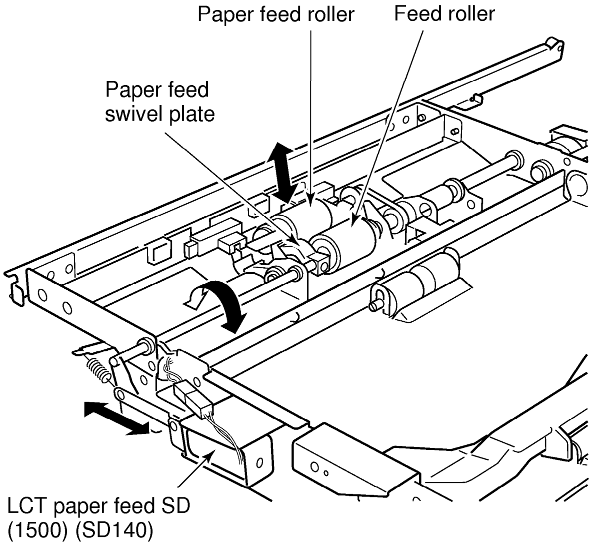
[2] Mechanisms

	Mechanism	Method
*1	Feed	Swivel roller
	1st paper feed	1st paper feed roller, paper feed solenoid
	Double feed prevention	Torque limiter
	No paper detection	Photo sensor
	Paper size detection	None
	Paper conveyance	Roller conveyance
	Conveyance drive	Timing belt

***1: Swivel roller**

To prevent the paper feed roller from touching the paper and causing a paper jam when the paper tray is being removed, the paper feed roller is designed so that it drops down and touches the paper only when paper feed is taking place.

This operation takes place as a result of the LCT paper feed solenoid (1500) driving the paper feed swivel plate.


Paper feed roller
Feed roller
Paper feed swivel plate
LCT paper feed SD (1500) (SD140)

[3] Disassembly and Re-assembly

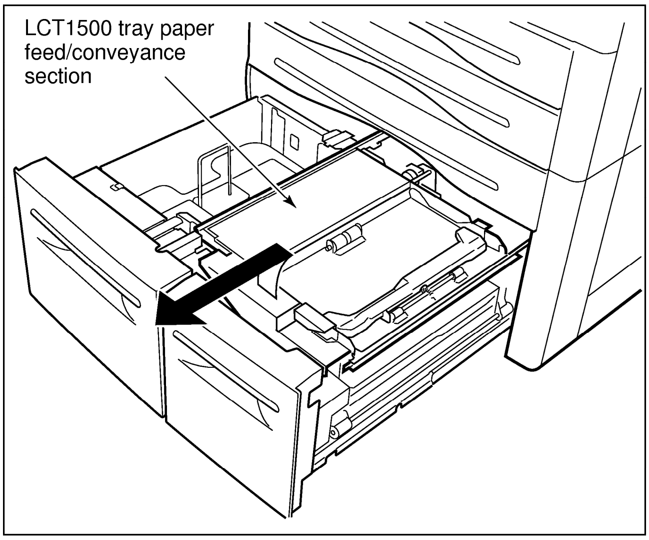
1. Removing and Re-installing the 1500 Tray Paper Feed/Conveyance Section

⚠Caution: Be sure that the power cord has been unplugged from the power outlet.

a. Procedure

(1) Withdraw the LCT1000 tray/LCT1500 tray in the forward direction.

(2) Withdraw the LCT1500 tray paper feed/conveyance section in the forward direction, then withdraw it further and lift it out.


LCT1500 tray paper feed/conveyance section

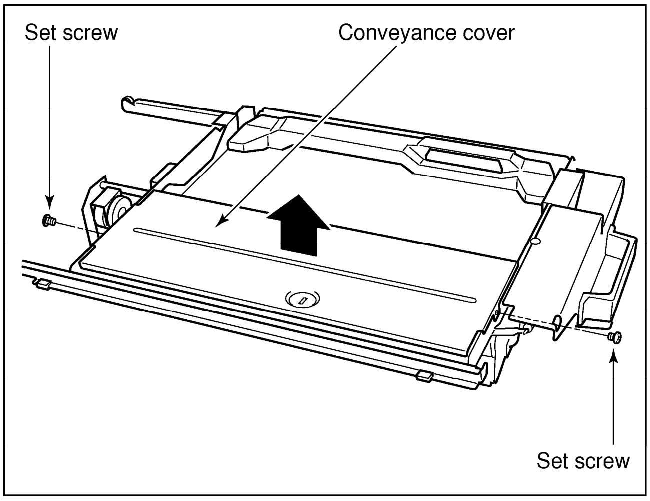
(3) Re-install the 1500 tray paper feed/conveyance section in the opposite sequence to removal.

2. Replacing the Rubber of the Paper Feed Roller and Feed Roller Rubber

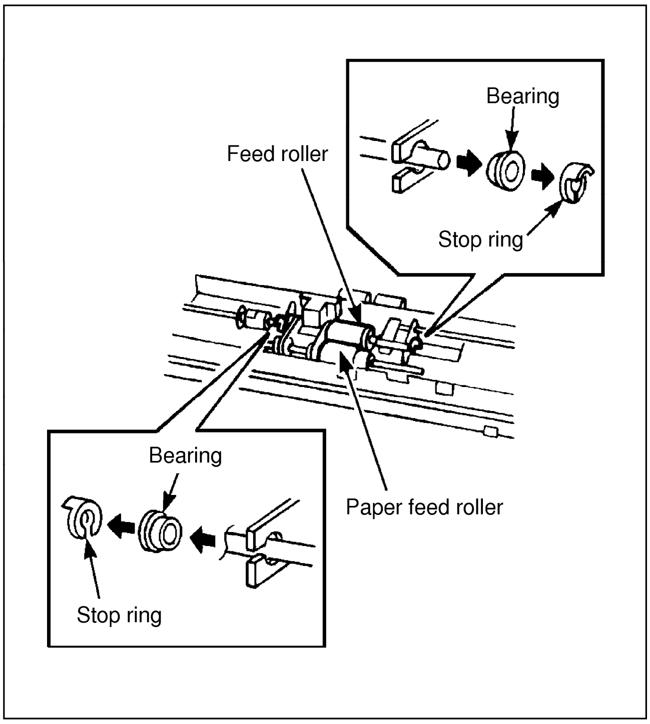
a. Procedure

(1) Remove the LCT1500 paper feed/conveyance section.

(2) Remove the two set screws, then remove the conveyance cover.

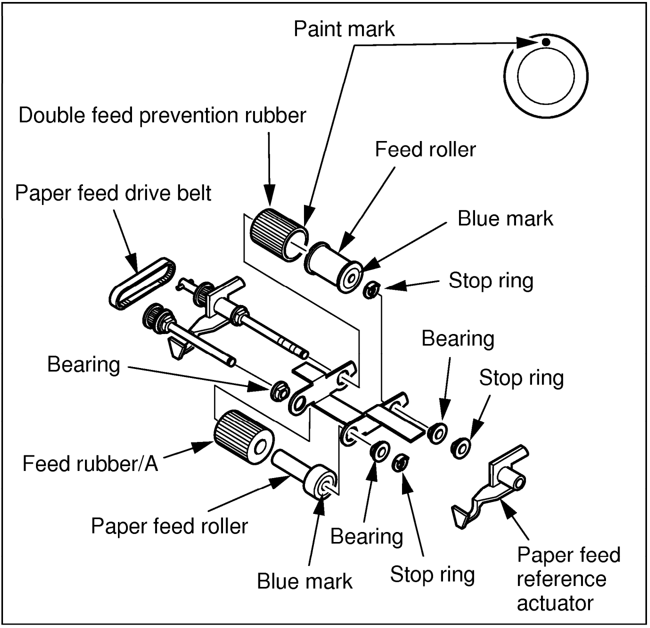

Set screw
Conveyance cover
Set screw

(3) Remove the two stop rings, then shift the left and right bearings to the outside, and remove the paper feed roller unit.


Bearing
Feed roller
Stop ring
Bearing
Paper feed roller
Stop ring

(4) Pull out the three stop rings, the three bearings, the paper feed reference actuator and the two shafts of the paper feed roller unit, then remove each roller.

(5) Remove the rubber from each roller (the feed rubber A and the double feed prevention rubber).


Paint mark
Double feed prevention rubber
Feed roller
Paper feed drive belt
Blue mark
Stop ring
Bearing
Bearing
Stop ring
Feed rubber/A
Paper feed roller
Bearing
Blue mark
Stop ring
Paper feed reference actuator

(6) Re-install the above parts in the opposite sequence to removal.

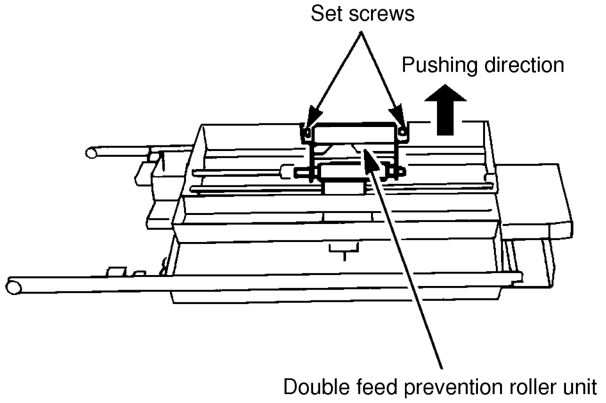
Caution: Ensure that the mounting direction of each roller and the rubber is correct.

3. Replacing the Rubber of the Double Feed Prevention Roller

a. Procedure

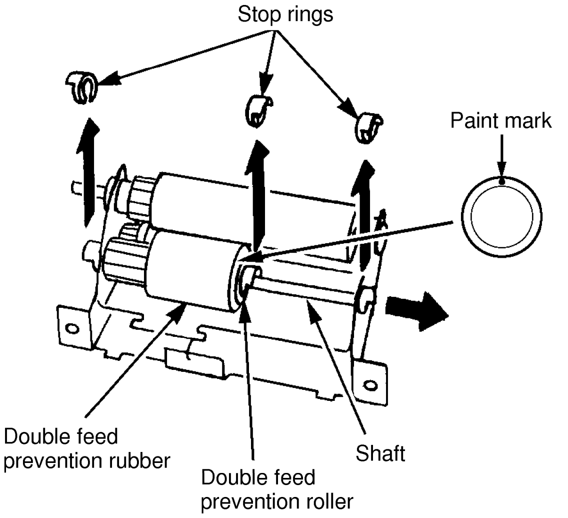
(1) Remove the LCT1500 paper feed/conveyance section.

(2) Remove the two set screws, then remove the double feed prevention roller unit. (When re-installing the roller unit, push it against the rear and fix it.)


Set screws
Pushing direction
Double feed prevention roller unit

(3) Remove the three stop rings, then pull out the shaft and remove the double feed prevention roller.

(4) Remove the double feed prevention rubber from the double feed prevention roller.


Stop rings
Paint mark
Double feed prevention rubber
Double feed prevention roller
Shaft

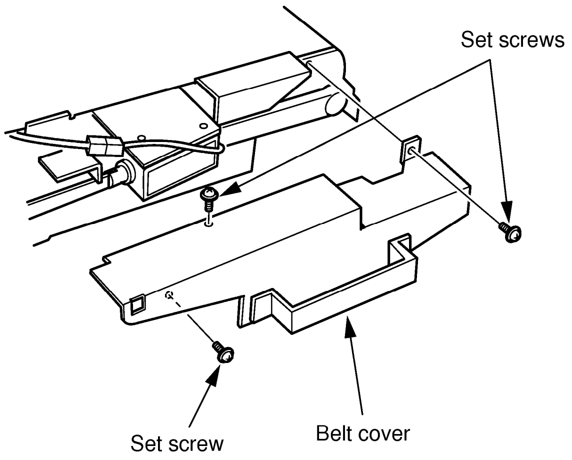
(5) Re-install the above parts in the opposite sequence to removal. (Be careful of the direction of the paint mark on the rubber, and also the direction in which you push the double feed prevention roller unit.)

4. Replacing the LCT Paper Feed Solenoid (SD140)

a. Procedure

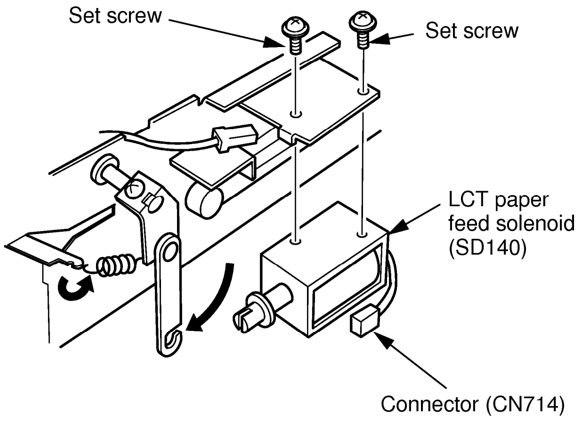
(1) Remove the LCT1500 paper feed/conveyance section.

(2) Remove the three set screws, then remove the belt cover.


Set screws
Set screw
Belt cover

(3) Remove the connector (CN714) of the LCT paper feed solenoid.

(4) Remove the two set screws, then remove the LCT paper feed solenoid.


Set screw
Set screw
LCT paper feed solenoid (SD140)
Connector (CN714)

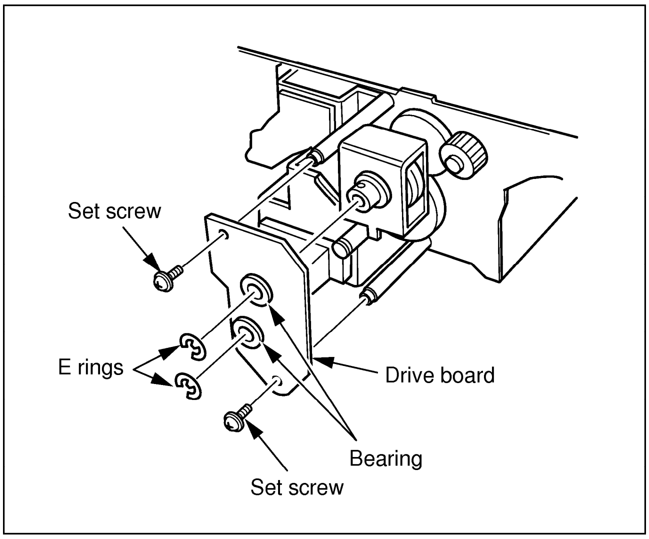
(5) Re-install the above parts in the opposite sequence to removal.

5. Replacing the LCT 1st Paper Feed Clutch (CL2)

a. Procedure

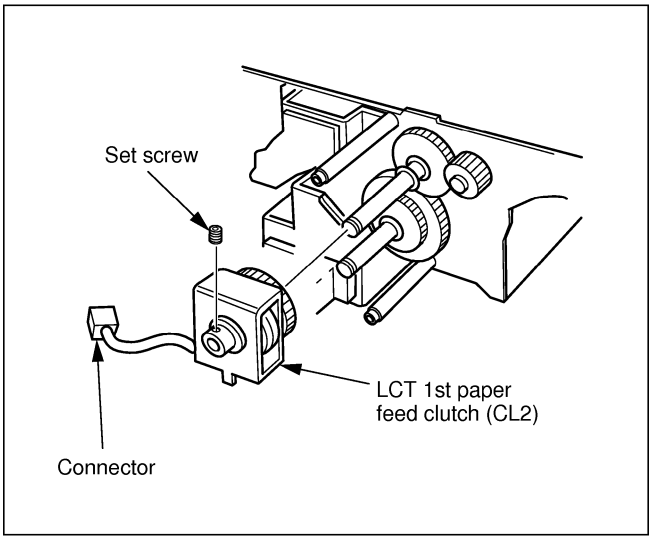
(1) Remove the LCT1500 paper feed/paper conveyance section.

(2) Remove the two set screws, two E rings and two bearings, then remove the drive board.


Set screw
E rings
Drive board
Bearing
Set screw

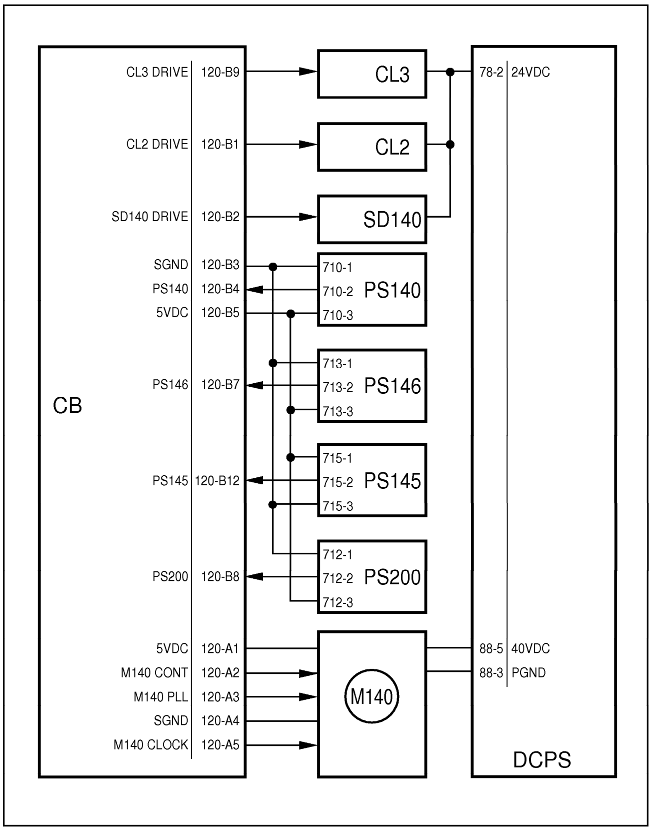
(3) Disconnect the connector of the clutch.

(4) Remove the set screw, then pull the LCT 1st paper feed clutch (CL2) off the shaft.


Set screw
LCT 1st paper
feed clutch (CL2)
Connector

(5) Re-install the above parts in the opposite sequence to removal.

## [4] 1500 Tray Paper Feed/No Paper Detection Control


CB
CL3 DRIVE 120-B9
CL2 DRIVE 120-B1
SD140 DRIVE 120-B2
SGND 120-B3
PS140 120-B4
5VDC 120-B5
PS146 120-B7
PS145 120-B12
PS200 120-B8
5VDC 120-A1
M140 CONT 120-A2
M140 PLL 120-A3
SGND 120-A4
M140 CLOCK 120-A5
CL3
CL2
SD140
710-1
710-2 PS140
710-3
713-1
713-2 PS146
713-3
715-1
715-2 PS145
715-3
712-1
712-2 PS200
712-3
M140
78-2 24VDC
88-5 40VDC
88-3 PGND
DCPS

The 1st paper feed from the 1500 tray takes place as a result of the transmission of the rotational force of M140 (LCT paper feed) by means of CL2 (LCT 1st paper feed (1500)) to the paper feed roller. The paper feed roller does not touch the paper at this time, so SD140 (LCT 1st paper feed (1500)) swivels, bringing the paper feed roller into contact with the paper. The fed paper is conveyed to the paper feed unit by drive force from M140 which is transmitted to the conveyance roller via CL3 (LCT conveyance).
M140, CL2, CL3 and SD140 are driven by the CB (control board). Related signals are PS140 (LCT no paper detection (1500)), PS146 (LCT conveyance (1500)), PS145 (LCT pre feed (1500)) and PS200 (LCT pre-try (1500)).

1. Operation

a. 1st paper feed operation timing

(1) Start of paper feed for 1st copy
Timing determined by the P counter from when the charging corona unit goes ON
(2) Start of paper feed for 2nd copy
Specified period after PS14 (registration) goes ON during the 1st copy operation
(3) OFF timing
Specified count on the P counter

b. No paper detection control

When there is no more copy paper in the LCT1500, PS140 goes ON, and a message appears on the operation panel.

2. Signals

a. Input signals

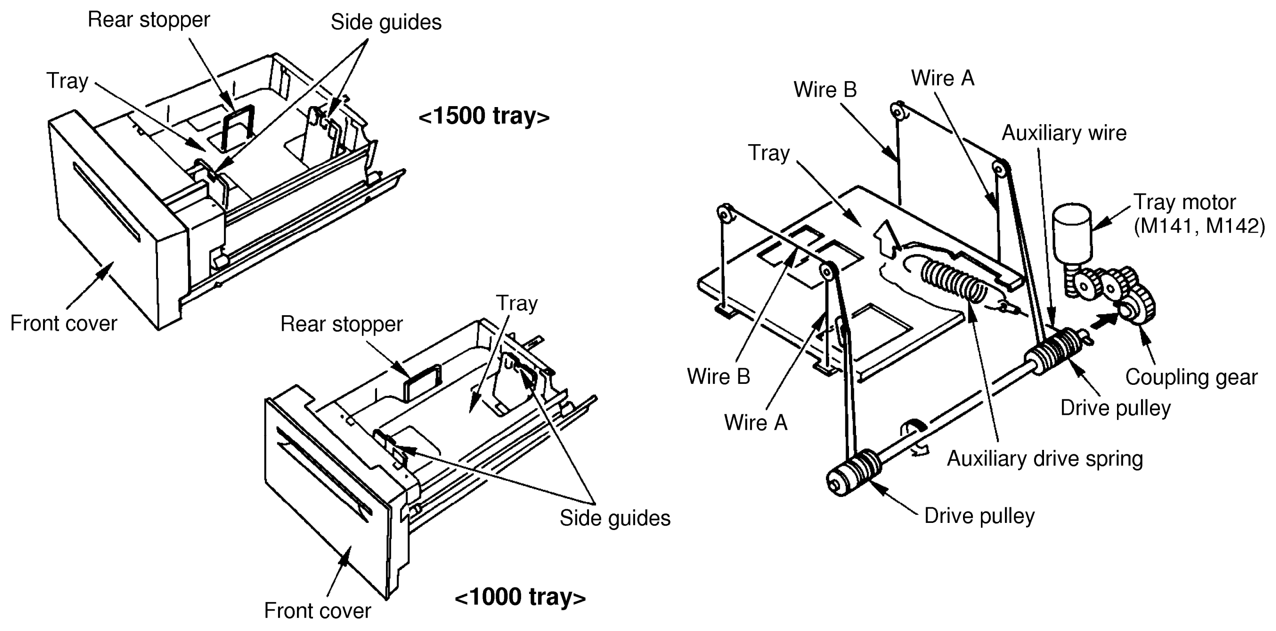
(1) PS140 (PS140 → CB)
No paper detection signal of the 1500 tray
[H]: No paper in tray
[L]: Paper in tray
(2) PS146 (PS146 → CB)
Paper passage detection signal of the 1500 tray conveyance section.
This signal becomes [L] while paper is passing through the 1500 tray conveyance section.
(3) PS145 (PS145 → CB)
Paper detection signal at the pre feed stop position
[L]: Paper is detected.
[H]:Paper is not detected.
(4) PS200 (PS200 → CB)
1st paper feed detection signal of the 1500 tray
This signal becomes [L] when paper is detected.

b. Output signals

(1) M140 CONT (CB → M140)
M140 ON/OFF control signal
[H]: M140 OFF
[L]: M140 ON
(2) M140 PLL (CB → M140)
PLL speed stabilizing signal for M140
(3) M140 CLOCK (CB → M140)
M140 speed instruction signal
(4) CL2 DRIVE (CB → CL2)
ON/OFF drive signal for CL2
[H]: CL2 OFF
[L]: CL2 ON
(5) CL3 DRIVE (CB → CL3)
ON/OFF drive signal for CL3
[H]: CL3 OFF
[L]: CL3 ON
(6) SD140 DRIVE (CB → SD140)
ON/OFF drive signal for SD140
[H]: SD140 OFF
[L]: SD140 ON

LCT PAPER TRAY SECTION

[1] Composition


Rear stopper
Side guides
Tray
<1500 tray>
Front cover
Rear stopper
Tray
Side guides
Front cover
<1000 tray>
Wire B
Wire A
Auxiliary wire
Tray
Tray motor (M141, M142)
Wire B
Wire A
Coupling gear
Drive pulley
Auxiliary drive spring
Drive pulley

[2] Mechanisms

Mechanism	Method
*1 Paper lift-up	Wire drive
Cassette loading	Front loading

*1: Paper lift-up

The paper tray is suspended by the four up-down drive wires (wires A and B — two each).

When paper is supplied to the tray, the tray drops under the weight of the paper, however the weight of the paper is balanced by the tension of the auxiliary drive spring.

When the paper tray is loaded, the tray motor (M141, M142) rotates, and the wire is wound up on the drive reel, causing the tray to rise.

When the paper tray is withdrawn from the pedestal, the coupling between the tray and the tray drive section is released, hence the tray falls to a position where the weight of the paper is balanced by the tension of the auxiliary drive spring.

[3] Disassembly and Re-assembly

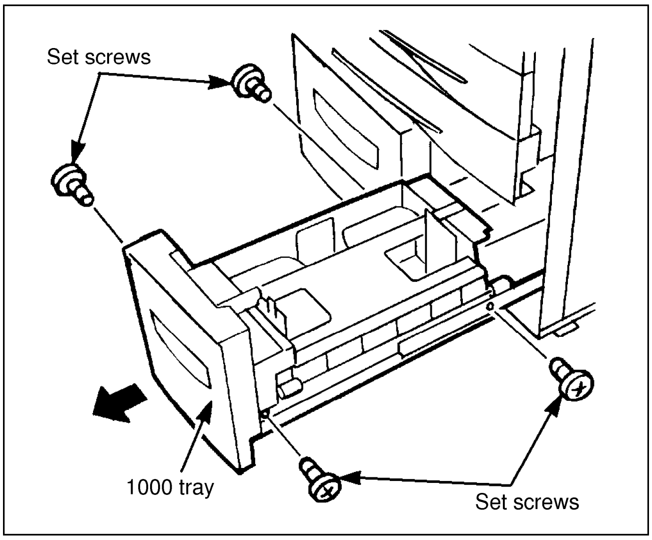
1. Removing and Re-installing the 1000 Tray

⚠Caution: Be sure that the power cord has been unplugged from the power outlet.

a. Procedure

(1) Withdraw the 1000 tray, then remove the four set screws.

(2) Lift out the 1000 tray.



(3) Re-install the 1000 tray in the opposite sequence to removal.

Caution: Install the front left and right set screws first.

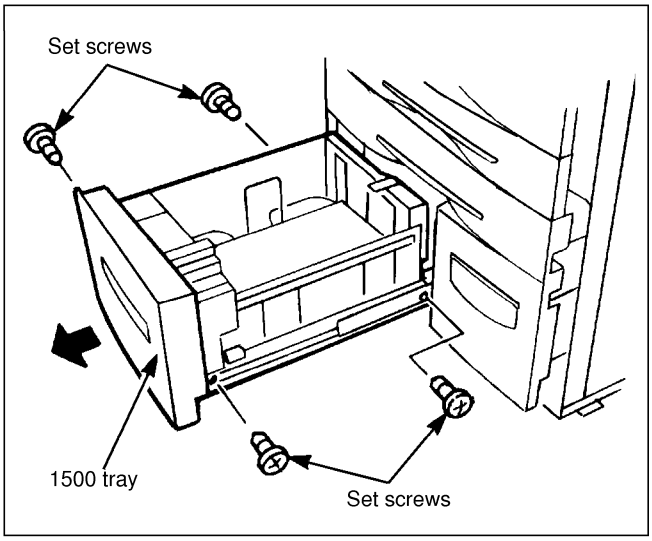
2. Removing and Re-installing the 1500 tray

⚠Caution: Be sure that the power cord has been unplugged from the power outlet.

a. Procedure

(1) Withdraw the 1500 tray, then remove the four set screws.

(2) Lift out the 1500 tray.



(3) Re-install the 1500 tray in the opposite sequence to removal.

Caution: Install the front left and right set screws first.

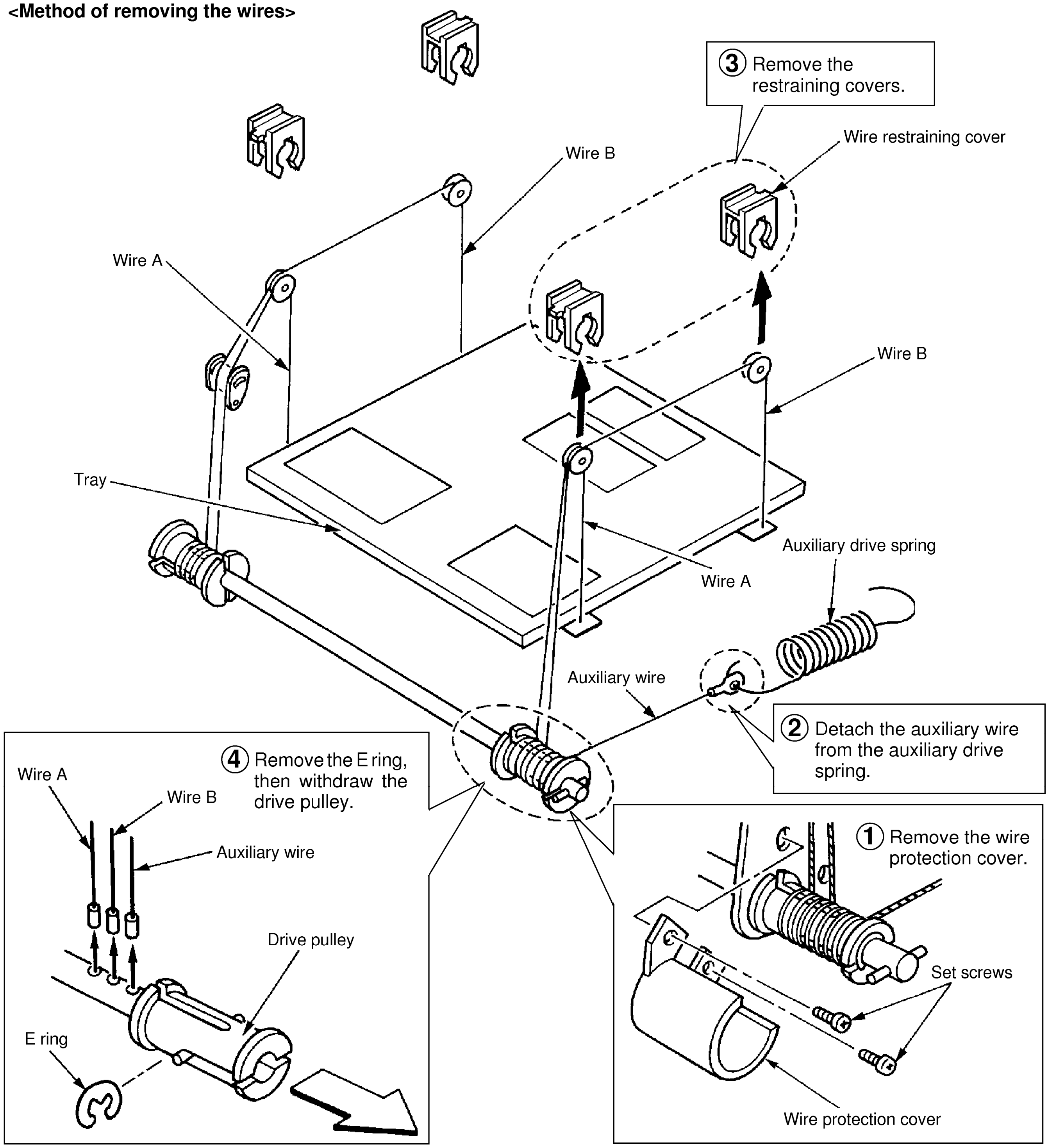
3. Replacing the Wires

Caution: The method of installing the tray up-down drive wires is the same for both the front and rear. For this reason, the description of the method of replacing the wires is based on the rear side only.
Install the front wires in exactly the same way as the rear wires.

Caution:

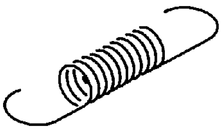
a. After replacing or re-installing the wires, move the tray up and down by hand, and confirm that it rises and falls smoothly.
b. Take care that wires do not cross each other or ride up the sides of the pulleys.
c. Adjust the tilt of the tray after installing the wires.

<Method of removing the wires>

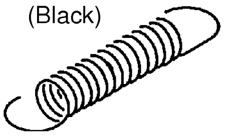


③ Remove the restraining covers.
Wire restraining cover
Wire B
Wire A
Wire B
Tray
Auxiliary drive spring
Wire A
Auxiliary wire
② Detach the auxiliary wire from the auxiliary drive spring.
④ Remove the E ring, then withdraw the drive pulley.
Wire A
Wire B
Auxiliary wire
Drive pulley
E ring
① Remove the wire protection cover.
Set screws
Wire protection cover

Caution: The 1500 tray has two kinds of auxiliary drive springs which are shown below. Install the spring which matches the size of paper to be used in the tray.

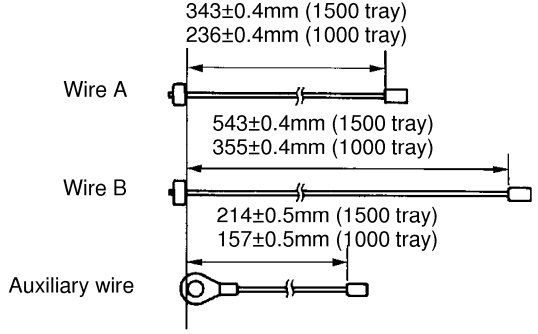


Auxiliary drive spring A
(for A4 size)

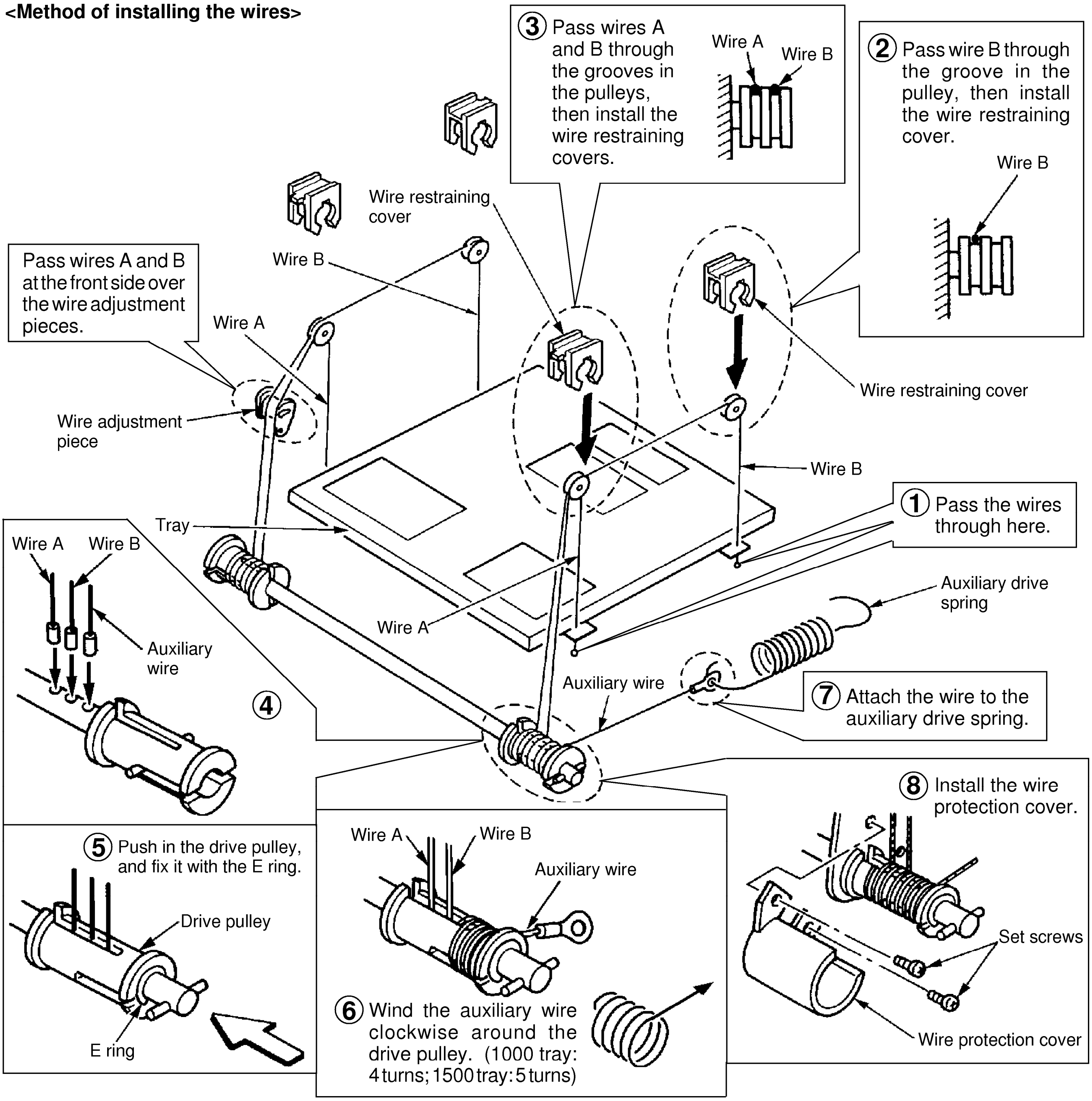


Auxiliary drive spring C
(for B5 size)

<Wire length>


343±0.4mm (1500 tray)
236±0.4mm (1000 tray)
Wire A
543±0.4mm (1500 tray)
355±0.4mm (1000 tray)
Wire B
214±0.5mm (1500 tray)
157±0.5mm (1000 tray)
Auxiliary wire

<Method of installing the wires>


Wire A
Wire B
Wire B
Wire restraining cover
Wire B
Wire A
Wire adjustment piece
Wire restraining cover
Wire B
Tray
Wire A
Wire B
Auxiliary wire
④
Wire A
Auxiliary drive spring
Auxiliary wire
Drive pulley
E ring
Wire A
Wire B
Auxiliary wire
Set screws
Wire protection cover

① Pass the wires through here.

② Pass wire B through the groove in the pulley, then install the wire restraining cover.

③ Pass wires A and B through the grooves in the pulleys, then install the wire restraining covers.

Pass wires A and B at the front side over the wire adjustment pieces.

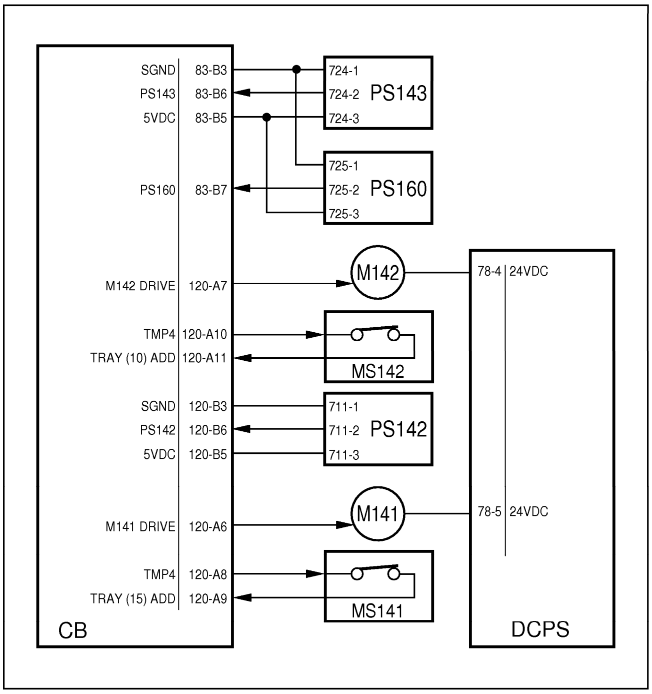
⑤ Push in the drive pulley, and fix it with the E ring.

⑥ Wind the auxiliary wire clockwise around the drive pulley. (1000 tray: 4 turns; 1500 tray: 5 turns)

⑦ Attach the wire to the auxiliary drive spring.

⑧ Install the wire protection cover.

[4] Tray up-down Control


SGND
83-B3
PS143
83-B6
5VDC
83-B5
724-1
724-2
724-3
PS143
725-1
725-2
725-3
PS160
PS160
83-B7
M142 DRIVE
120-A7
M142
78-4
24VDC
TMP4
120-A10
TRAY (10) ADD
120-A11
MS142
SGND
120-B3
PS142
120-B6
5VDC
120-B5
711-1
711-2
711-3
PS142
M141 DRIVE
120-A6
M141
78-5
24VDC
TMP4
120-A8
TRAY (15) ADD
120-A9
MS141
CB
DCPS

The tray rises as a result of the transmission of the rotational force of M141 (tray (1500)) and M142 (tray (1000)) by means of the drive wires (four wires each).
M141 and M142 are driven by the CB (control board).
Related signals are MS141 (LCT interlock (1500)), MS142 (LCT interlock (1000)), PS142 (LCT upper limit detection (1500)), PS143 (LCT upper limit detection (1000)), and PS160 (LCT interlock).

1. Operation

When MS141 or MS142 detects a paper tray, M141 or M142 goes ON, causing the corresponding tray to rise.
The tray rises when PS142 or PS143 detects the upper limit of the paper and goes ON, then M141 or M142 goes OFF, and the tray stops rising.
The paper is fed when PS142 or PS143 goes OFF, then M141 or M142 goes ON once again, and the tray rises.
The lowering operation of both the 1500 tray and 1000 tray takes place mechanically.

2. Signals

a. Input signals

(1) PS142 (PS142 → CB)
1500 tray upper limit detection signal.
This signal becomes [L] when the upper limit is detected.

(2) TRAY (15) ADD (MS141 → CB)
1500 tray loaded detection signal
This signal is the TMP4 signal which is input via MS141 when the tray is detected.

(3) PS143 (PS143 → CB)
1000 tray upper limit detection signal
This signal becomes [L] when the upper limit is detected.

(4) TRAY (10) ADD (MS142 → CB)
1000 tray loaded detection signal
This signal is the TMP4 signal which is input via MS142 when the tray is detected.

(5) PS160 (PS160 → CB)
LCT conveyance door open/close detection signal
[H]: LCT conveyance door open
[L]: LCT conveyance door closed

b. Output signals

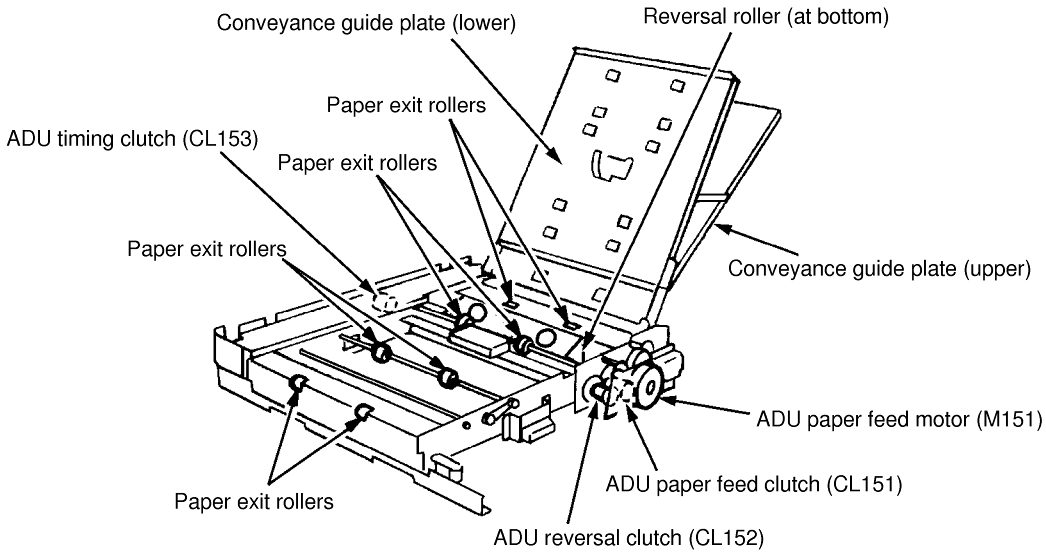
(1) TMP4 (CB → MS141, MS142)
This is a pulse signal which detects that the 1500 tray and the 1000 tray are loaded.

(2) M141 DRIVE (CB → M141)
M141 ON/OFF drive signal
[H]: M141 OFF
[L]: M141 ON

(3) M142 DRIVE (CB → M142)
M142 ON/OFF drive signal
[H]: M142 OFF
[L]: M142 ON

ADU PAPER FEED/CONVEYANCE SECTION

[1] Composition

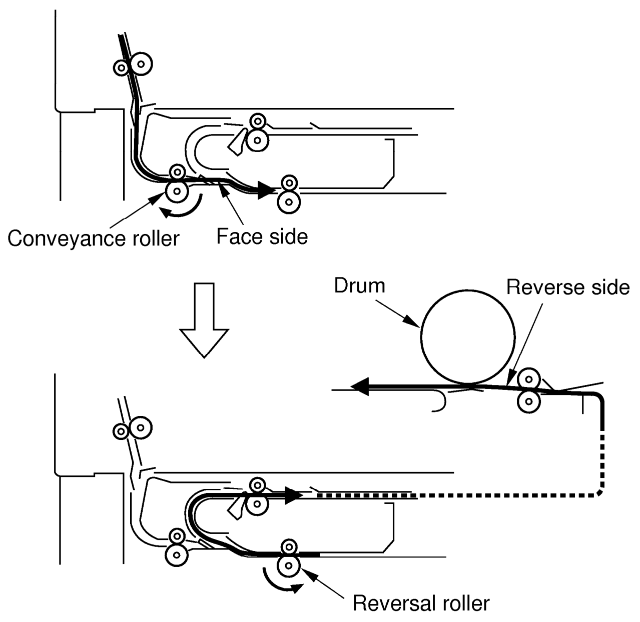

Conveyance guide plate (lower)
Reversal roller (at bottom)
Paper exit rollers
ADU timing clutch (CL153)
Paper exit rollers
Paper exit rollers
Conveyance guide plate (upper)
ADU paper feed motor (M151)
ADU paper feed clutch (CL151)
Paper exit rollers
ADU reversal clutch (CL152)

[2] Mechanisms

	Mechanism	Method
*1	Paper feed	Non-stack selection
*2	Paper path selection	Selector gate
	Paper conveyance	Conveyance roller (one) Reversal roller (one) Paper exit rollers (four)
	Conveyance drive	Timing belts (four) + gear
*3	Jam clearance	Selector gate, conveyance guide plate (B), opening/ closing of conveyance guide plate (upper)/(lower)
	Applicable sizes of paper passing	A3 to A5R

*1: Non-stack paper feed mechanism

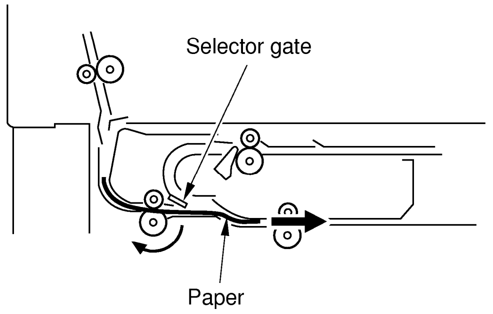
The paper in the paper exit/conveyance section is fed to the paper feed unit by the conveyance rollers. When the trailing edge of the paper is completely inside the paper feed unit, it is exited to the conveyance unit by the reversal roller without being stacked. At this time, the paper is exited from the trailing edge side, hence the face side and reverse side are inverted in the conveyance unit.


Conveyance roller
Face side
Drum
Reverse side
Reversal roller

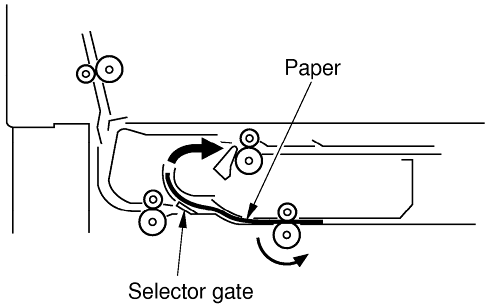
*2: Paper path selection

The selector gate switches the path of the paper exit/conveyance between the paper advance path from the paper exit/conveyance section to the paper feed section, and the paper exit path from the paper feed section to the conveyance section. The selector gate does not have a drive mechanism. The paper path is determined by the shape of leading edge of the gate.

<During paper feed>


Selector gate
Paper

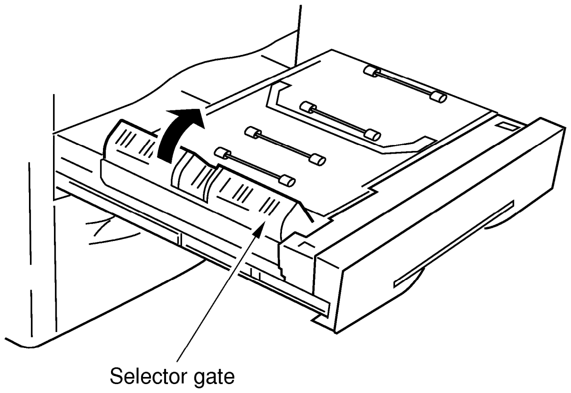
<During paper exit>


Paper
Selector gate

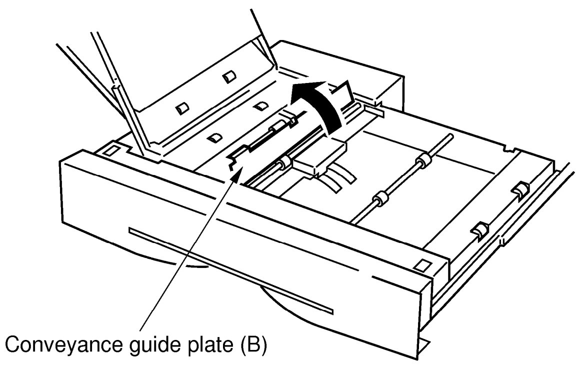
*3: Jam clearance mechanism

There is a jam clearance mechanism on each of the selector gate, the paper feed unit and the conveyance unit. Jammed paper can be removed by opening and closing the selector gate, conveyance guide plate (B) or conveyance guide plate (upper)/(lower), depending upon where the jam occurred.

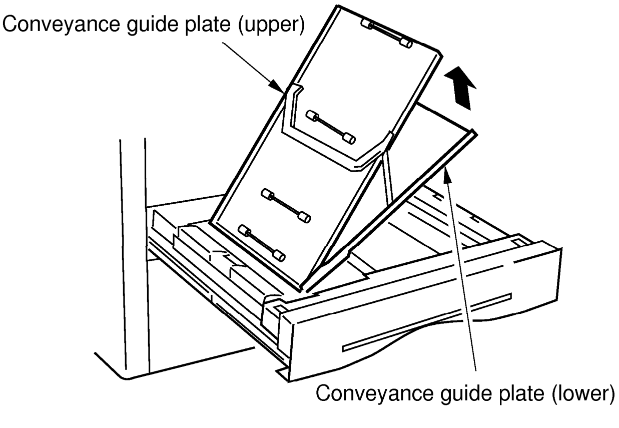
• Selector gate section


Selector gate

• Paper feed section


Conveyance guide plate (B)

• Conveyance section


Conveyance guide plate (upper)
Conveyance guide plate (lower)

[3] Disassembly and Assembly

1. Removing and Re-installing the Paper Feed/ Conveyance Section

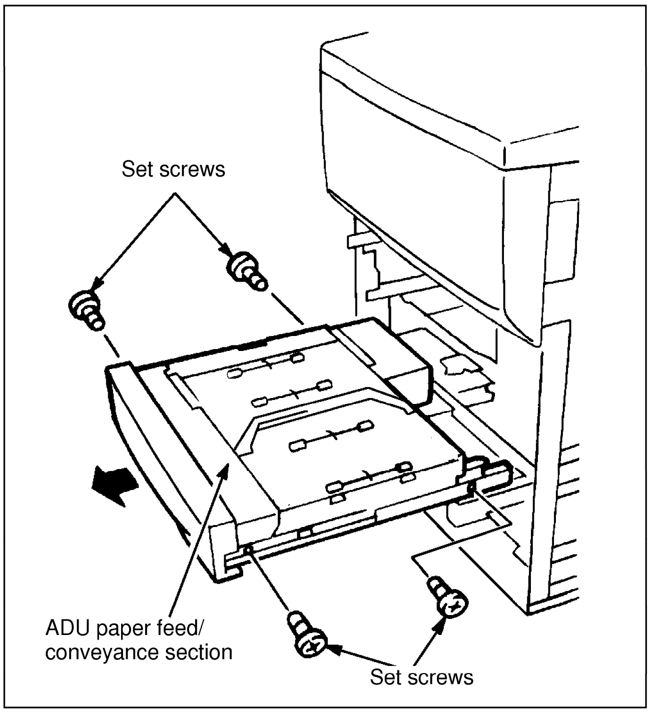
⚠Caution: Be sure that the power cord has been unplugged from the power outlet.

a. Procedure

(1) Withdraw the ADU unit, then remove the four set screws.

(2) Withdraw the ADU unit, then lift out the ADU unit.

△2


Set screws
ADU paper feed/ conveyance section
Set screws

(3) Re-install the paper feed/conveyance section in the opposite sequence to removal. In this case, however, install the front left and right set screws first.

2. Replacing Conveyance Pulley/C, Conveyance Roller/E

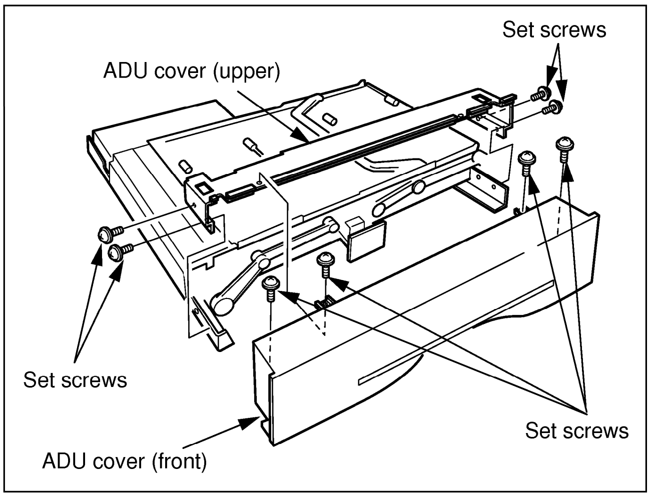
a. Procedure

(1) Remove the ADU unit.

(2) Remove the four set screws, then remove the ADU cover (front).

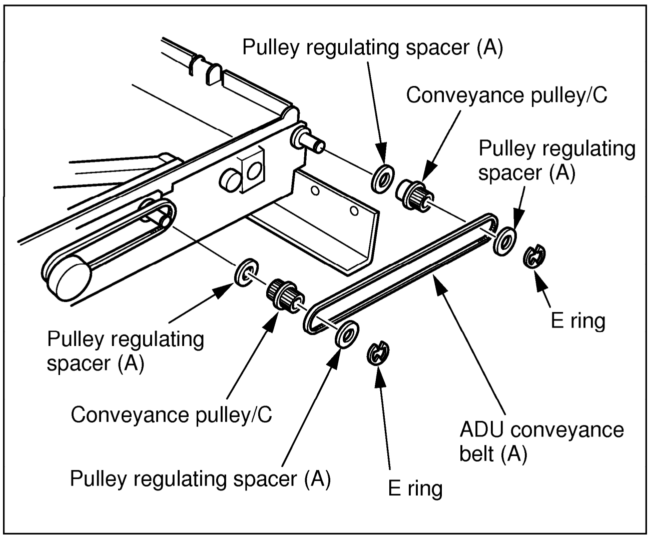
(3) Remove the four set screws, then remove the ADU cover (upper).

△2


Set screws
ADU cover (upper)
Set screws
ADU cover (front)
Set screws

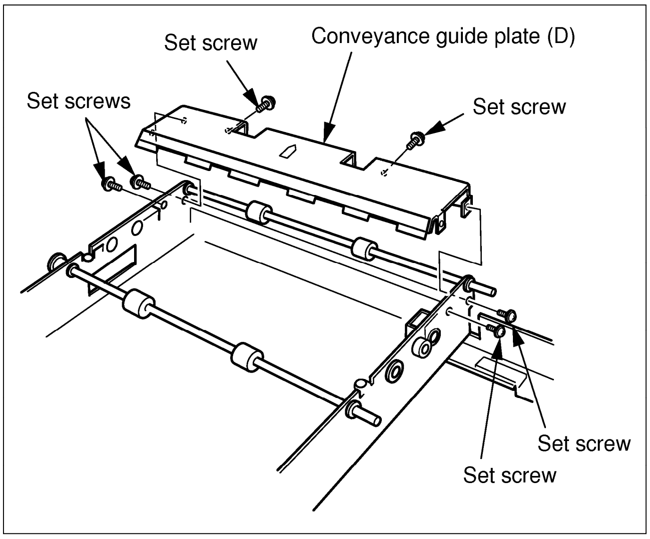
(4) Remove the two E rings and the two pulley regulating spacers (A), then remove the ADU conveyance belt (A).

(5) Remove the two conveyance pulleys/C together with the two pulley regulating spacers (A).

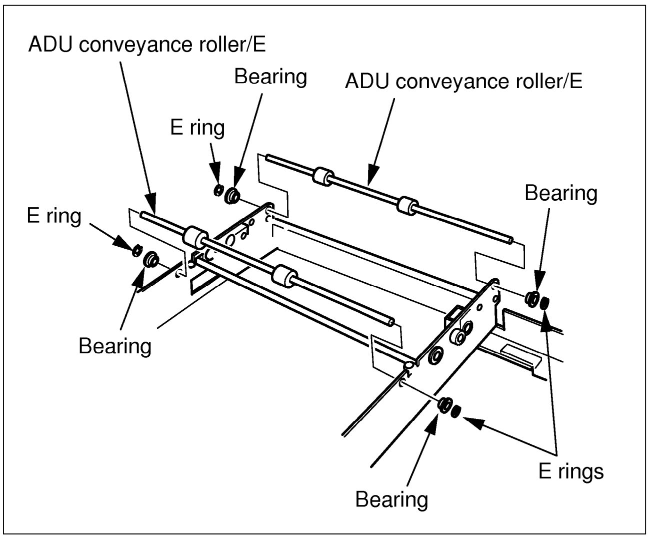

Pulley regulating spacer (A)
Conveyance pulley/C
Pulley regulating spacer (A)
E ring
Pulley regulating spacer (A)
Conveyance pulley/C
Pulley regulating spacer (A)
E ring
ADU conveyance belt (A)

MC-Service

(6) Remove the six set screws, then remove the conveyance guide plate (D).


Set screw
Conveyance guide plate (D)
Set screws
Set screw
Set screw
Set screw

(7) Remove the four E rings and the four bearings, then remove the ADU conveyance roller/E.

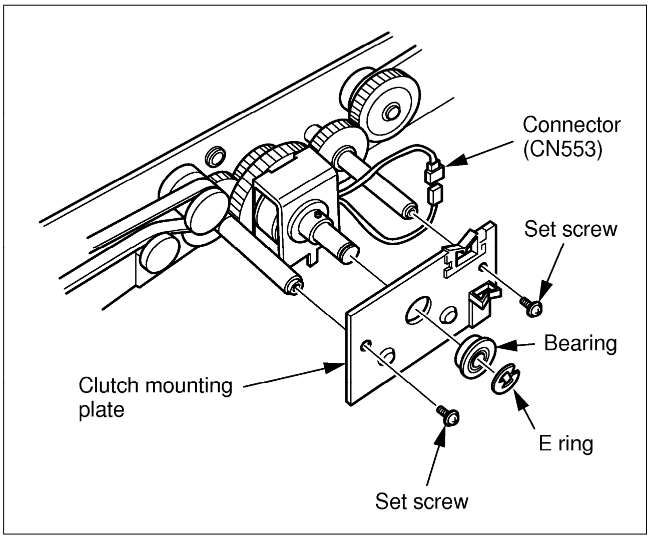

ADU conveyance roller/E
Bearing
ADU conveyance roller/E
E ring
Bearing
E ring
Bearing
E rings
Bearing

(8) Re-install the above parts in the opposite sequence to removal.

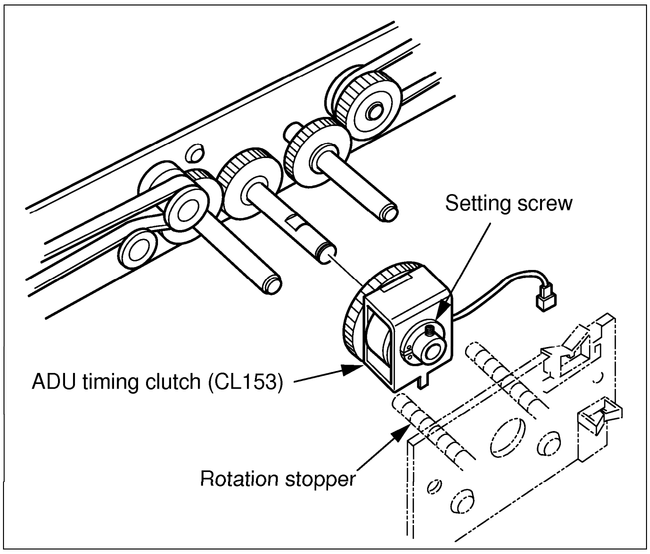
3. Replacing the ADU Timing Clutch (CL153)

a. Procedure

(1) Remove the ADU unit.
(2) Remove the ADU cover (front).
(3) Remove the ADU cover (upper).
(4) Remove the E ring and the bearing.
(5) Remove the two set screws, then remove the clutch mounting plate.
(6) Disconnect the clutch connector (CN553).


Connector (CN553)
Set screw
Bearing
Clutch mounting plate
E ring
Set screw

(7) Slacken the set screw, then remove the ADU timing clutch (CL153) from the shaft.


Setting screw
ADU timing clutch (CL153)
Rotation stopper

(8) Re-install the above parts in the opposite sequence to removal.

Caution: When re-installing the clutch, ensure that the clutch is between the rotation stopper in the clutch mounting plate.

4. Replacing the ADU Paper Feed Clutch (CL151) and ADU Reversal Clutch (CL152)

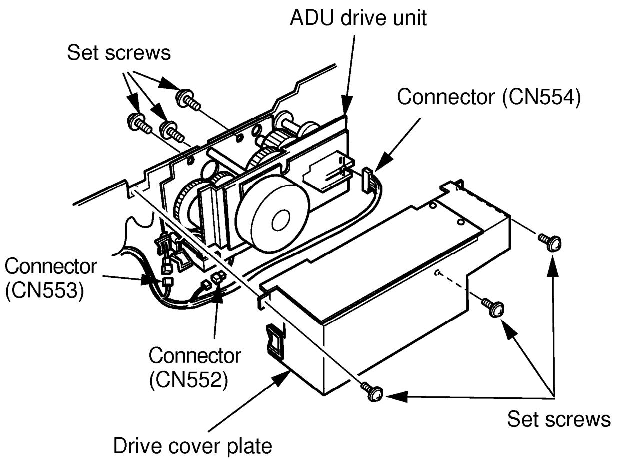
a. Procedure

(1) Remove the ADU unit.

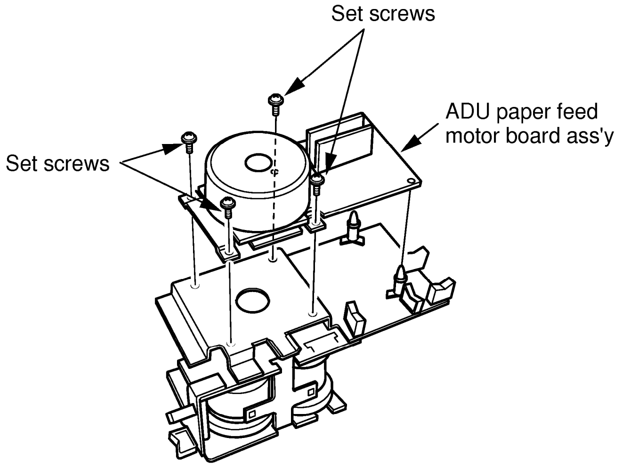
(2) Remove the three set screws, then remove the drive cover plate.

(3) Remove the three set screws, then remove the ADU drive unit from the ADU.

(4) Disconnect the three connectors (CN552, CN553 and CN554).

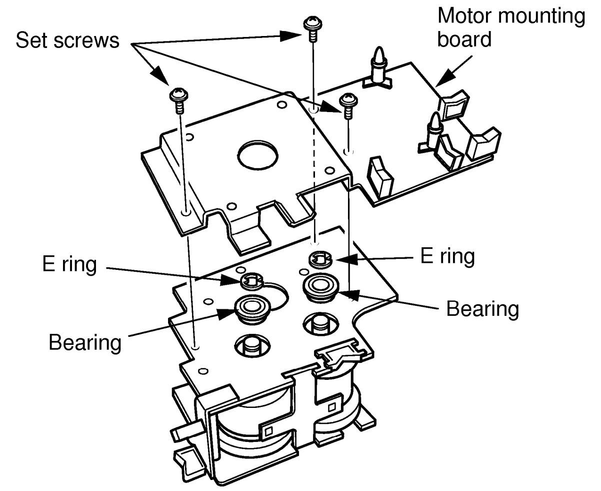

ADU drive unit
Set screws
Connector (CN554)
Connector (CN553)
Connector (CN552)
Drive cover plate
Set screws

(5) Remove the four set screws and two supports, then remove the ADU paper feed motor board ass'y.


Set screws
ADU paper feed motor board ass'y
Set screws

(6) Remove the three set screws, then remove the motor mounting board.

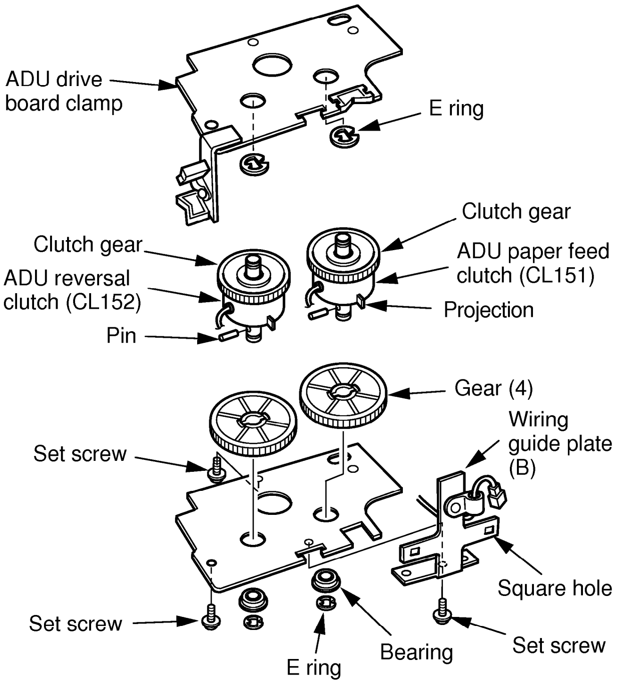
(7) Remove the two E rings and the two bearings.


Set screws
Motor mounting board
E ring
E ring
Bearing
Bearing

(8) Remove the E ring, the three set screws, and the bearing, then remove the ADU drive board plate.

(9) Remove each gear (4), then pull out the pins remaining in the shafts.

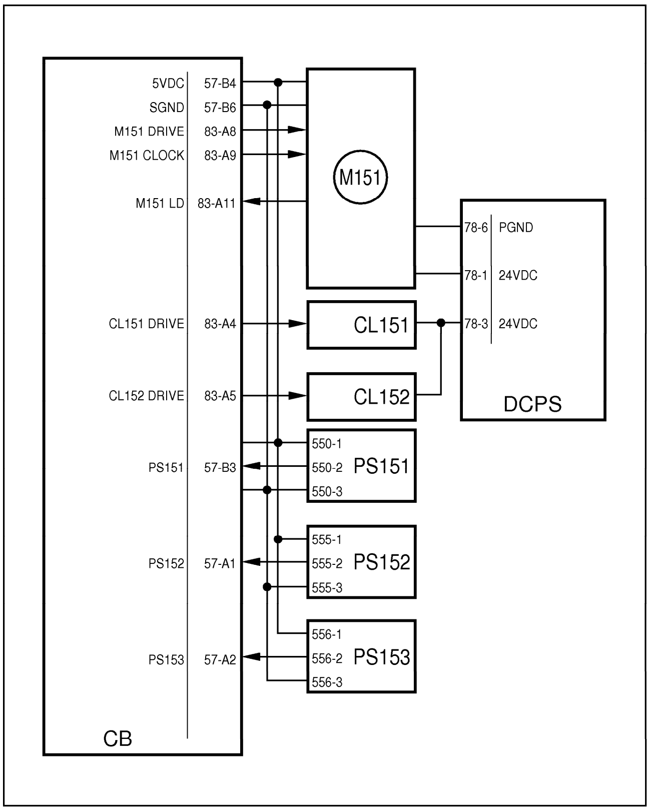
(10) Remove the E ring and the C ring, then pull out the clutch gear from the ADU paper feed clutch/B.


ADU drive board clamp
E ring
Clutch gear
Clutch gear
ADU paper feed clutch (CL151)
ADU reversal clutch (CL152)
Projection
Pin
Gear (4)
Wiring guide plate (B)
Set screw
Square hole
Set screw
Set screw
E ring
Bearing

(11) Re-install the above parts in the opposite sequence to removal.

Caution: When installing ADU paper feed clutch and ADU reversal clutch, ensure that the projection enters the square hole of the wiring guide plate (B).

[4] Paper Feed/Reversal Control



The paper feed and reversal operations take place as a result of the transmission of rotational force from M151 (ADU paper feed) to the conveyance roller and the reversal roller by means of CL151 (ADU paper feed) and CL152 (ADU reversal).
M151, CL151 and CL152 drive the CB (control board).
Related signals are PS151 (ADU no paper detection), PS152 (ADU paper feed), PS153 (ADU reversal detection).

1. Operation

a. Paper feed control

M151 goes ON after the specified time from when MC3 (2nd paper feed) goes ON. When PS152 detects the leading edge of the paper conveyed from the reversal paper exit, CL151 goes ON, causing the rotational force of M151 to be transmitted to the conveyance roller. As a result, paper is fed to the stacker from the bottom of the selector gate. CL151 goes OFF after the specified time from when PS152 detects the trailing edge of the paper.
For the second sheet of paper, CL151 goes ON again after the specified time from when CL152 is turned OFF by the passage of the 1st sheet. The same operation is repeated for the subsequent sheets as well.
M151 goes OFF after the end of a series of control operations in the ADU.

b. Reversal control

When CL151 goes OFF, CL152 goes ON after the specified time, and the rotational force of M151 is transmitted to the reversal roller. As a result, the paper in the ADU paper feed section is reversed and conveyed, then exited to the conveyance section from upper side of the selector gate.
CL152 goes OFF after the specified time from when PS153 goes OFF as a result of detecting the trailing edge of the paper.

2. Signals

a. Input signals

(1) PS151 (PS151 → CB)
No paper in stacker detection signal
[H]: Paper in stacker
[L]: No paper in stacker

(2) PS152 (PS152 → CB)
Paper at entrance of ADU paper feed/conveyance section detection signal
This signal becomes [H] when paper is detected.

(3) PS153 (PS153 → CB)
Paper at entrance of stacker section detection signal
This signal becomes [L] when paper is detected.

(4) M151 LD (M151 → CB)
This signal becomes [L] when M151 reaches the specified speed.

b. Output signals

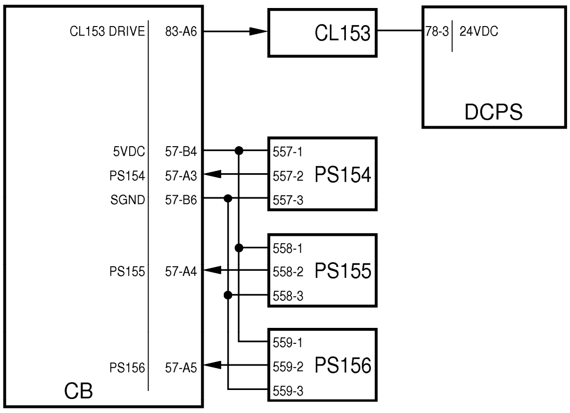
(1) M151 DRIVE (CB → M151)
M151 ON/OFF drive signal
[H]: M151 OFF
[L]: M151 ON

(2) M151 CLOCK (CB → M151)
PLL control clock signal for M151

(3) CL151 DRIVE (CB → CL151)
ON/OFF drive signal for CL151
[H]: CL151 OFF
[L]: CL151 ON

(4) CL152 DRIVE (CB → CL152)
ON/OFF control signal for CL152
[H]: CL152 OFF
[L]: CL152 ON

[5] Conveyance Control


CL153 DRIVE
83-A6
CL153
78-3
24VDC
DCPS
5VDC
57-B4
PS154
57-A3
SGND
57-B6
557-1
557-2
557-3
PS154
558-1
558-2
558-3
PS155
57-A4
559-1
559-2
559-3
PS156
57-A5
CB

Conveyance takes place as a result of the transmission of rotational force from M151 (ADU paper feed) by means of the CL153 (ADU timing).
M151 and CL153 are driven by the CB (control board).
Related signals are PS154 (ADU paper exit 1), PS155 (ADU paper exit 2) and PS156 (ADU paper exit 3).

1. Operation

CL153 goes ON in synchronism with PS19 (optics sync), and conveys the reversed paper from the stacker to the main body paper feed unit. If PS18 (no feed) is ON when PS19 is turned ON, CL153 goes OFF for a moment until PS18 is turned OFF. When PS18 is turned OFF CL153 goes ON again and when PS14 (registration) is turned OFF by final paper, CL153 goes OFF.

2. Signals

a. Input signals

(1) PS154 (PS154 → CB)
Jammed paper at entrance of ADU conveyance section detection signal
This signal becomes [L] when paper is detected.

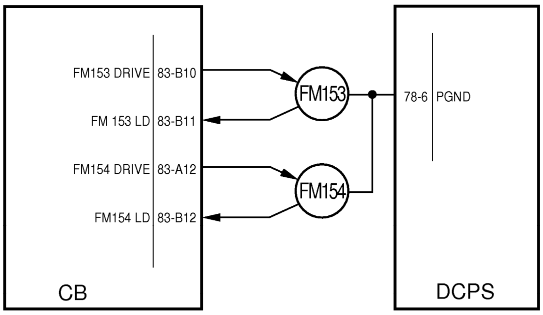
(2) PS155 (PS155 → CB)
Jammed paper inside ADU conveyance section detection signal
This signal becomes [L] when paper is detected.

(3) PS156 (PS156 → CB)
Jammed paper at exit of ADU conveyance section detection signal
This signal becomes [L] when paper is detected.

b. Output signal

(1) CL153 DRIVE (CB → CL153)
CL153 ON/OFF drive signal
[H]: CL153 OFF
[L]: CL153 ON

[6] ADU Cooling Fan Control


FM153 DRIVE
83-B10
FM 153 LD
83-B11
FM154 DRIVE
83-A12
FM154 LD
83-B12
CB
FM153
FM154
78-6
PGND
DCPS

FM153 (ADU cooling fan 1) and FM154 (ADU cooling fan 2) are installed in order to prevent curling of the paper.
FM153 and FM154 are driven by the CB (control board).

1. Operation

a. ON timing

Rotates at the start of paper feed when a double-side copy is specified.

b. OFF timing

Stops at the end of paper exit.

2. Signals

a. Input signals

(1) FM153 LD (FM153 → CB)
[L] is output when FM153 reaches the specified speed.

(2) FM154 LD (FM154 → CB)
[L] is output when FM154 reaches the specified speed.

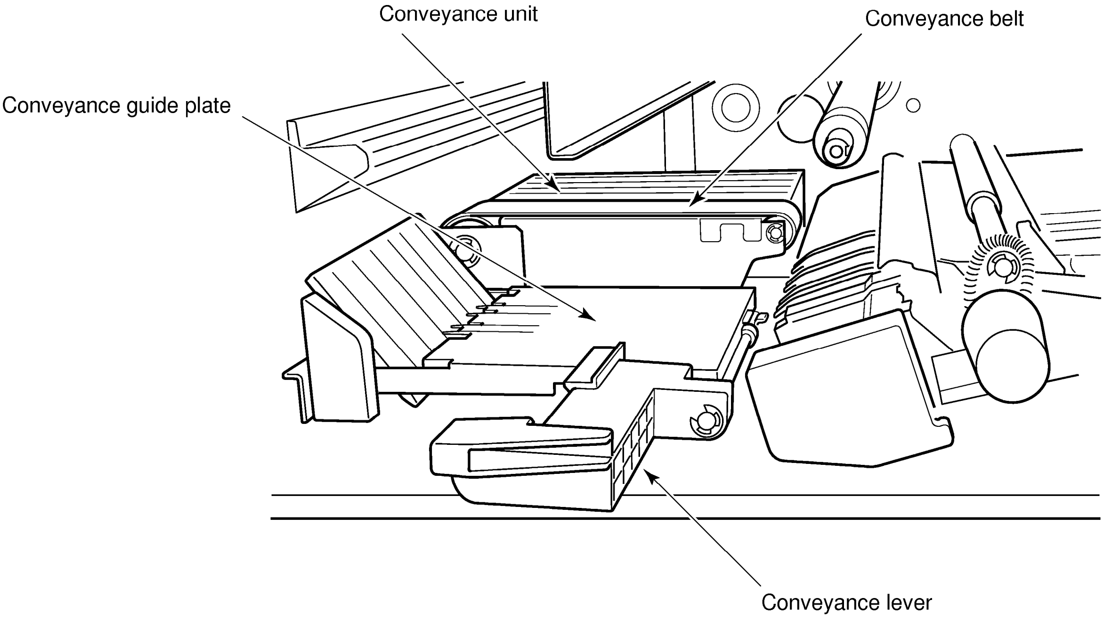
b. Output signals

(1) FM153 DRIVE (CB → FM153)
FM153 ON/OFF drive signal
[L]: FM153 ON
[H]: FM153 OFF

(2) FM154 DRIVE (CB → FM154)
FM154 ON/OFF drive signal
[L]: FM154 ON
[H]: FM154 OFF

CONVEYANCE SECTION

[1] Composition

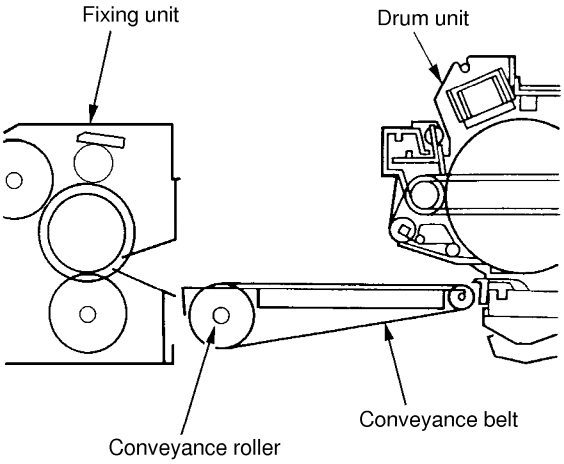

Conveyance unit
Conveyance belt
Conveyance guide plate
Conveyance lever

[2] Mechanisms

	Mechanism	Method
*1	Paper conveyance	One conveyance belt
*2	Belt lifting mechanism	Cam drive

*1: Paper conveyance

The paper fed from the 2nd paper feed section is conveyed to the fixing unit by the conveyance belt. The conveyance belt is driven by the main motor. When paper is being conveyed, it is sucked onto the conveyance belt by the conveyance suction motor (FM14) installed beneath the conveyance unit, in order to improve the conveyance performance.

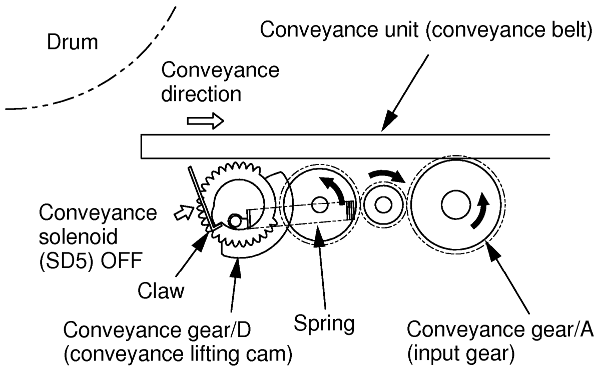

Fixing unit
Drum unit
Conveyance belt
Conveyance roller

*2: Conveyance belt lifting mechanism

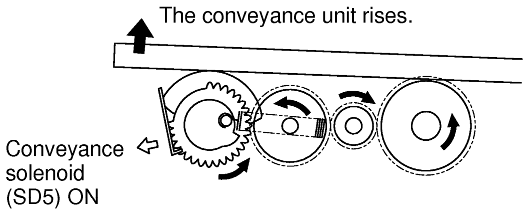
This mechanism raises the conveyance unit when thick paper is used, in order to improve the paper conveyance performance.

When the conveyance solenoid (SD5) goes ON, drive force is transmitted to the conveyance lifting cam, and the conveyance belt is raised together with the conveyance unit.

a. During normal conveyance, conveyance gear/D does not rotate.


Drum
Conveyance unit (conveyance belt)
Conveyance direction
Conveyance solenoid (SD5) OFF
Claw
Conveyance gear/D (conveyance lifting cam)
Spring
Conveyance gear/A (input gear)

b. When thick paper is being conveyed, conveyance gear/D rotates.


The conveyance unit rises.
Conveyance solenoid (SD5) ON

[3] Disassembly and Re-assembly

1. Removing and Re-installing the Conveyance Unit

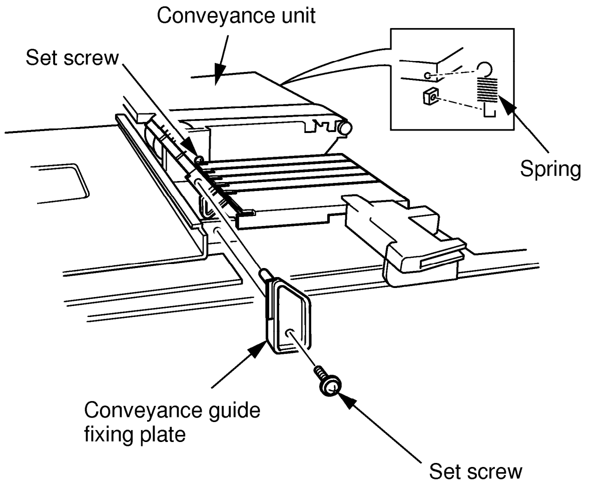
a. Procedure

(1) Open the front door, then remove the drum unit, fixing unit and transfer/separation corona unit. (Refer to the description of the drum unit, fixing unit and corona unit for details of removing these units.)

(2) Remove the set screw, then remove the conveyance guide fixing plate.

(3) Remove the set screw fixing the conveyance unit.

(4) Remove the spring at the rear of the drum, then remove the conveyance unit.


Conveyance unit
Set screw
Spring
Conveyance guide fixing plate
Set screw

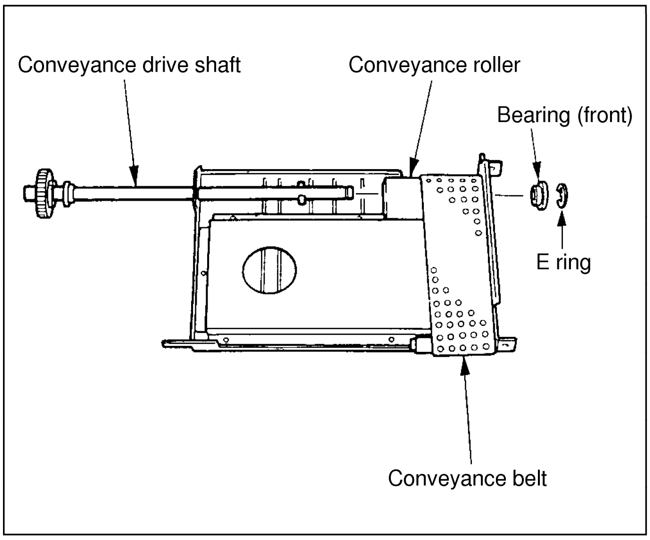
(5) Install the conveyance unit in the opposite sequence to removal.

2. Replacing the Conveyance Belt

Caution: When removing the conveyance belt, take care not to damage it on the edge of the conveyance unit.

a. Procedure

(1) Remove the conveyance unit.
(2) Remove the E ring, then remove the bearing (front).
(3) Pull out the conveyance drive shaft from the conveyance unit, then remove the conveyance belt.


Conveyance drive shaft
Conveyance roller
Bearing (front)
E ring
Conveyance belt

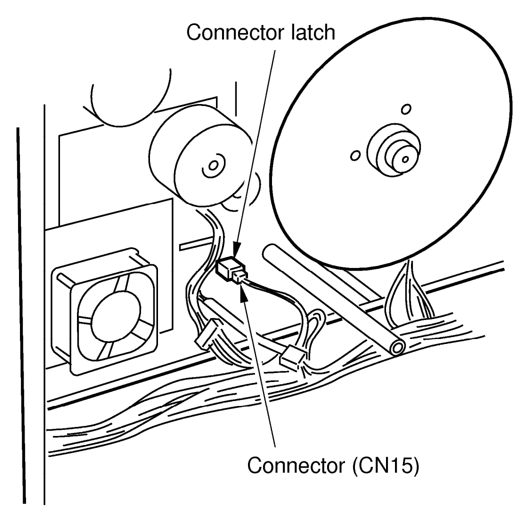
(4) Re-install the above parts in the opposite sequence to removal.

3. Replacing the Conveyance Suction Fan (FM14)

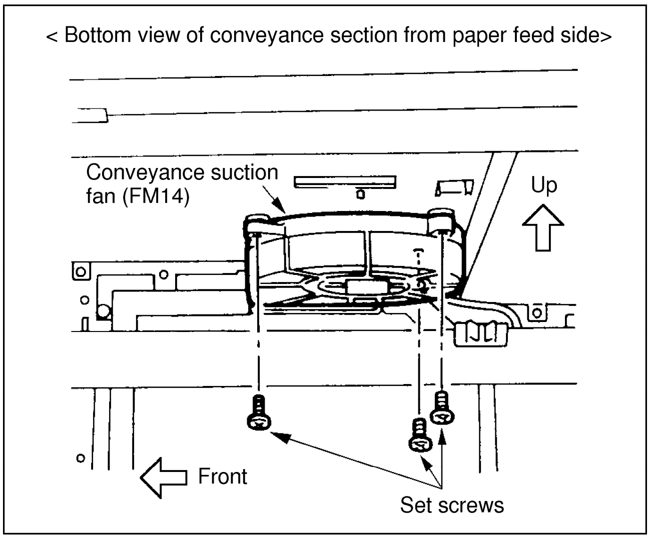
⚠**Caution:** **Be sure that the power cord has been unplugged from the power outlet.**

a. Procedure

(1) Open the front door, then remove the upper/lower tray and the paper feed unit.
(2) Remove the rear cover.
(3) Disconnect the connector (CN15) at the rear, then grasp the hook of connector latch with radio pliers and push it out to the front.

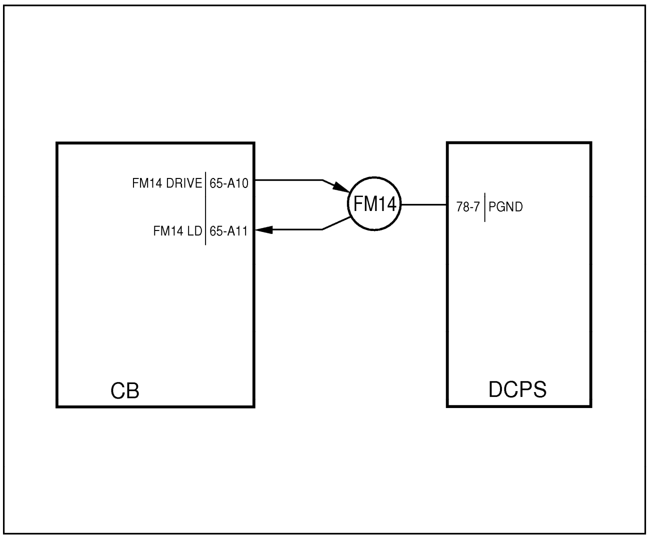

Connector latch
Connector (CN15)

(4) Remove the three set screws, then remove the conveyance suction fan.


< Bottom view of conveyance section from paper feed side>
Conveyance suction fan (FM14)
Up
Front
Set screws

(5) Re-install the above parts in the opposite sequence to removal.

[4] FM14 (conveyance suction fan) Control


FM14 DRIVE
65-A10
FM14 LD
65-A11
FM14
78-7
PGND
CB
DCPS

FM14 (conveyance suction fan) is driven by the CB (control board).

1. Operation

FM14 is a 24 V drive DC motor. It goes ON and OFF in synchronism with M4 (main).

2. Signals

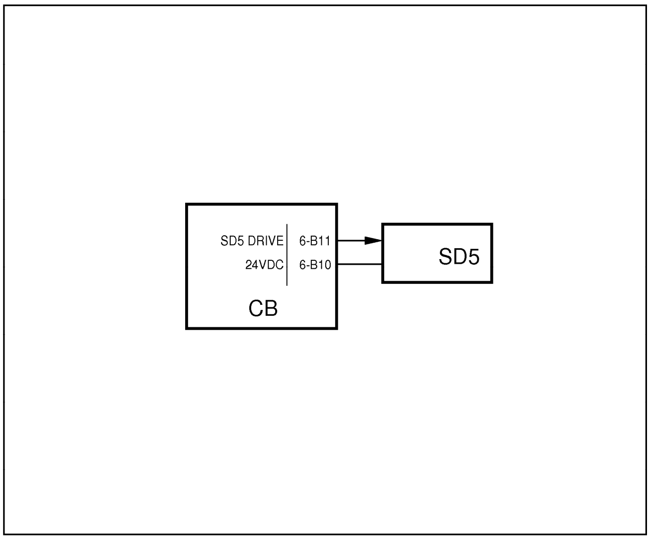
a. Input signal

(1) FM14 LD (FM14 → CB)
This signal becomes [L] when FM14 reaches the specified speed.

b. Output signal

(1) FM14 DRIVE (CB → FM14)
FM14 drive control signal
[L]: FM14 OFF
[H]: FM14 ON

[5] SD5 (conveyance) Control


SD5 DRIVE
6-B11
24VDC
6-B10
CB
SD5

SD5 (conveyance) is driven by the CB (control board).

1. Operation

SD5 is a 24 V drive DC solenoid. In the thick paper mode, it is turned ON (conveyance section rises) at the start of copying.

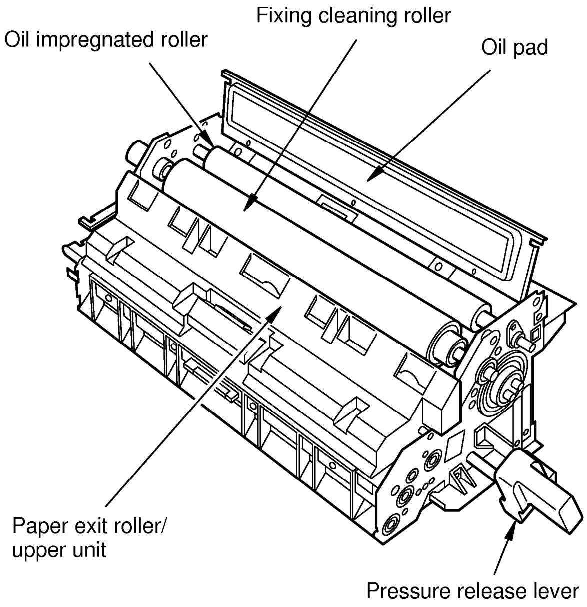
2. Signal

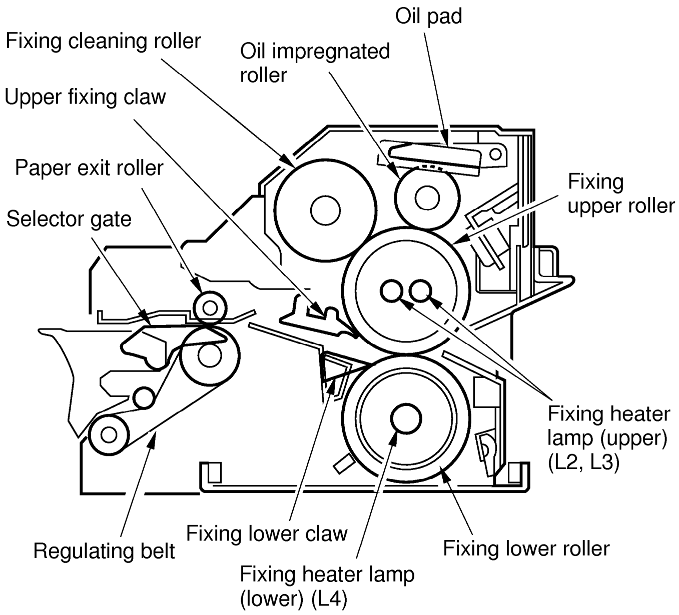
a. Output signal

(1) SD5 DRIVE (CB → SD5)
SD5 drive control signal
[L]: SD5 ON
[H]: SD5 OFF

FIXING UNIT

[1] Composition


Oil impregnated roller
Fixing cleaning roller
Oil pad
Paper exit roller/
upper unit
Pressure release lever


Fixing cleaning roller
Upper fixing claw
Paper exit roller
Selector gate
Oil impregnated
roller
Oil pad
Fixing
upper roller
Fixing heater
lamp (upper)
(L2, L3)
Regulating belt
Fixing lower claw
Fixing heater lamp
(lower) (L4)
Fixing lower roller

[2] Mechanisms

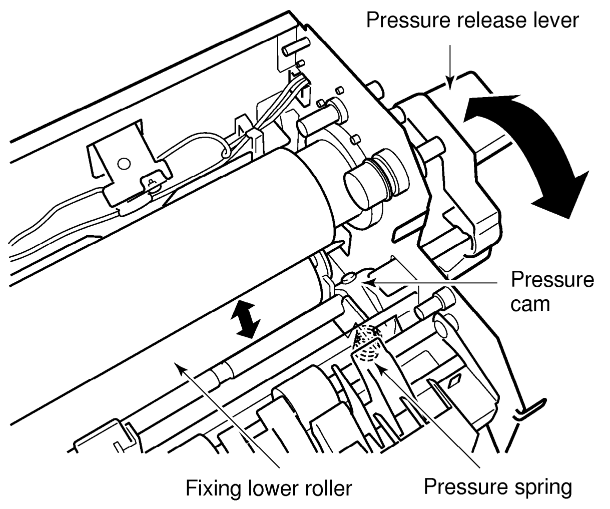
	Mechanism	Method
	Fixing	Pressure + heat roller
*1	Heat source	Heater lamp (Two upper and one lower lamp)
	Cleaning	Fixing cleaning roller/Oil impregnated roller/ Oil pad
	Upper roller	Aluminium + PFA coating
	Lower roller	Silicone rubber + PFA tube
	Separation	Separation claws (6 upper and 3 lower claws)
	Temperature detection	Upper roller * Non-contact type thermistor (for control) * Contact type thermistor (for abnormality detection) Lower roller * Non-contact type thermistor (for control)
	Overheating prevention	Non-contact type thermostat (1 each for upper and lower roller)
	Neutralizing	Neutralizing brush
*2	Pressure release	Pressure release cam, spring
*3	Jam sensor	Photo sensor (also used as paper exit PS)
*4	Decurler	Regulating belt (5 belts)

*1: Fixing heater lamps

The fixing heater lamps consists of three halogen lamps (two for the upper fixing roller and one for the lower fixing roller). They are intended to reduce the warmup time from when the machine is switched ON.

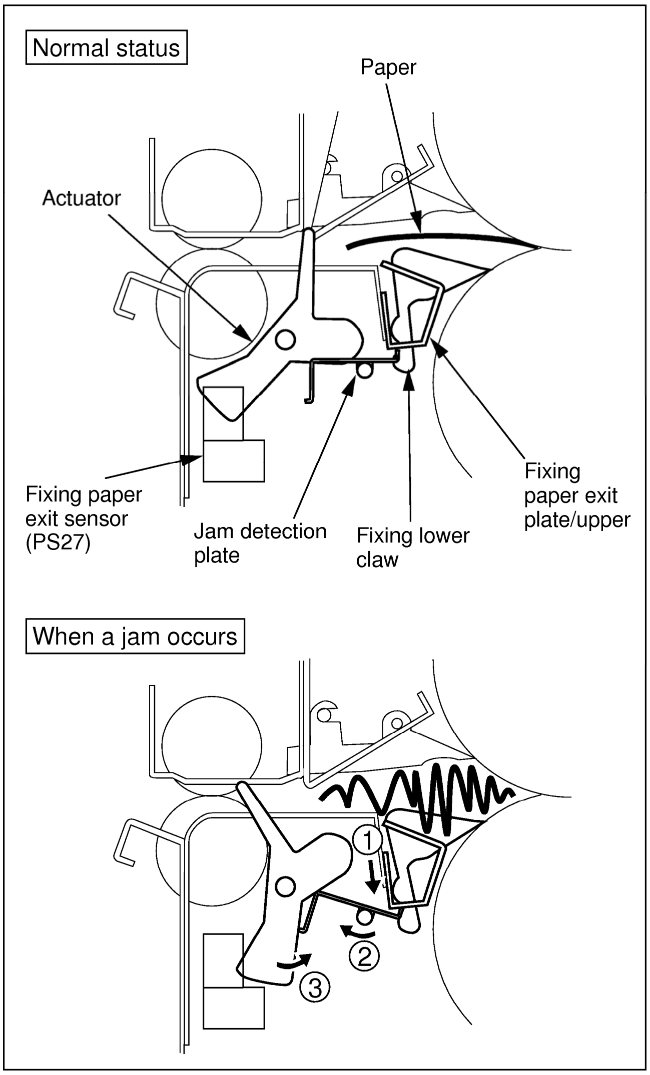
*2: Lower roller pressure release

When you move the pressure release lever in the fixing or release direction, the pressure cam pushes the pressure spring up or down, causing the lower roller to be pressurized or released.


Pressure release lever
Pressure
cam
Fixing lower roller
Pressure spring

*3: Jam sensor

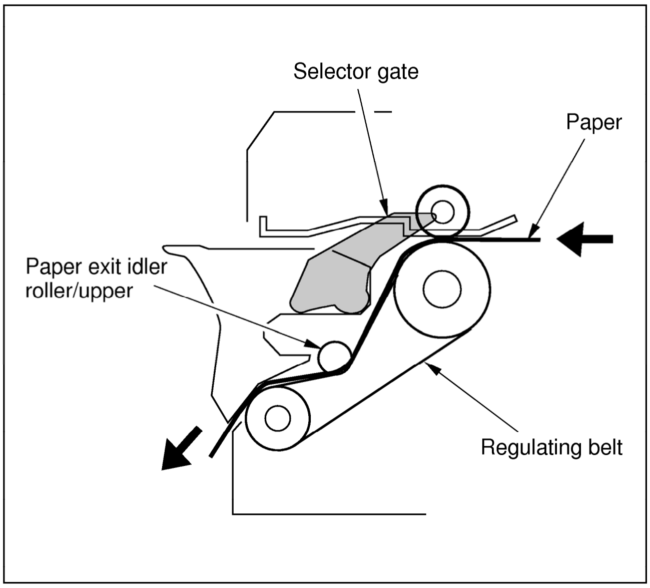
When a jam occurs in the fixing paper exit section, the fixing paper exit plate/upper is pushed down and the fixing paper exit sensor (PS27) detects the jam by means of the operation of the jam detection plate and actuator.


Normal status
Paper
Actuator
Fixing paper exit sensor (PS27)
Jam detection plate
Fixing lower claw
Fixing paper exit plate/upper
When a jam occurs
①
②
③

*4: Decurler

Curled paper which is guided by the selector gate is decurled as a result of being passed between the regulating belt and the paper exit idler roller/upper.

(Refer to the reversal exit section for the selector gate operations.)


Selector gate
Paper
Paper exit idler roller/upper
Regulating belt

[3] Disassembly and Re-assembly

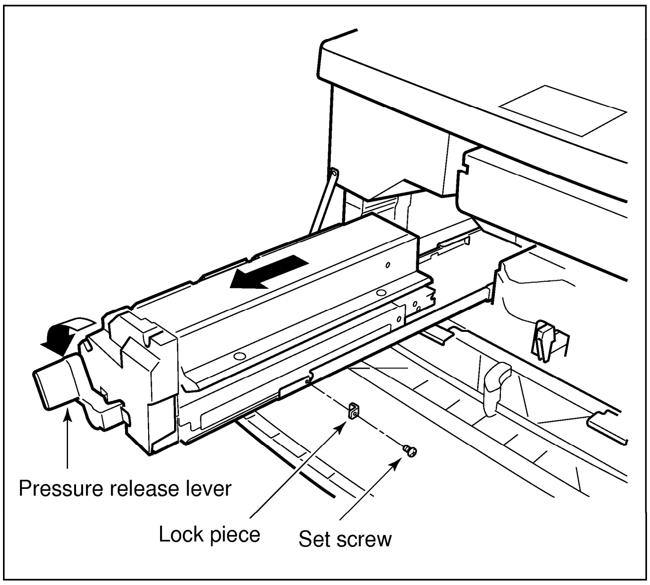
1. Removing and Re-installing the Fixing Unit

⚠**Caution:**

1. **Be sure that the power cord has been unplugged from the power outlet.**
2. **Do not touch the fixing unit immediately after turning OFF the main switch because it is very hot and you may receive a burn. Wait until the fixing unit has cooled down sufficiently before working on it.**

a. Procedure

(1) Open the front door, then move the pressure release lever to the release side.
(2) Grasp the pressure release lever, then pull it out until it locks.
(3) Remove the set screw, then remove the lock piece.
(4) Pull out the fixing unit further, and remove it.



(5) Re-install the fixing unit in the opposite sequence to removal.

2. Replacing the Fixing Heater Lamp (upper) (L2, L3)

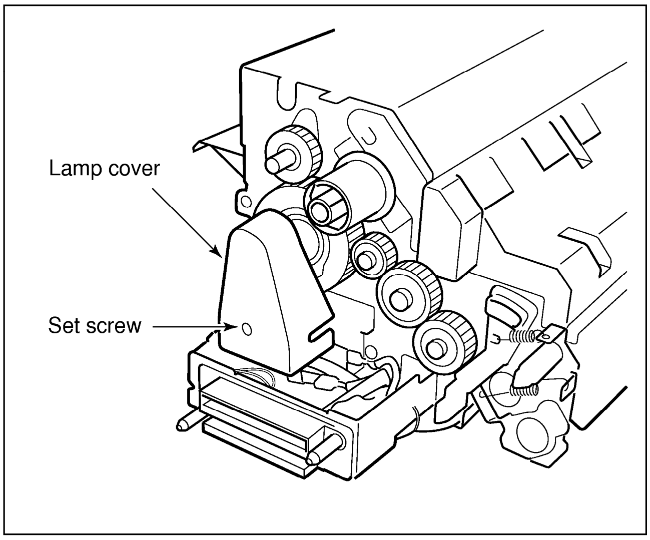
⚠**Caution: Do not touch the fixing heater lamp (upper) with the bare hands.**

Caution:

1. Install the fixing heater lamp with the manufacturer mark facing the drive gear side.
2. Avoid touching the inside of roller with the fixing heater lamp.
3. When installing the fixing heater lamp, ensure that the terminal of the lamp are facing the correct direction.
4. When replacing the fixing heater lamp, check to ensure that the ends of the lamp are properly inserted in the terminals.

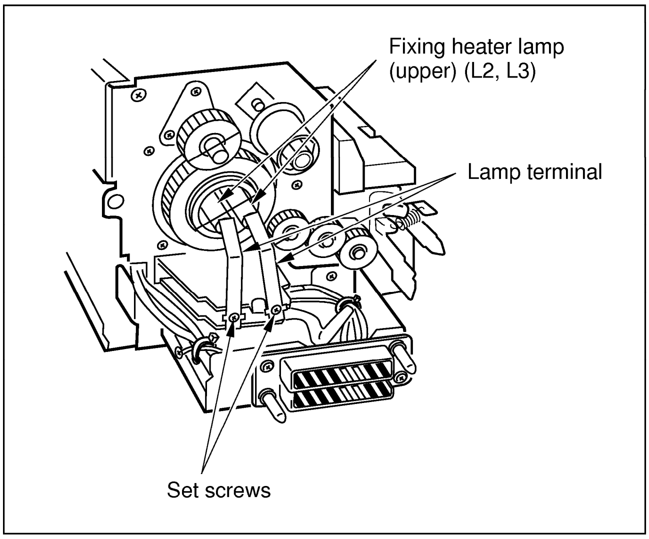
a. Procedure

(1) Remove the fixing unit.
(2) Remove the set screw, then remove the lamp cover.



(3) Remove the set screw, then remove the lamp terminal.

(4) Pull out the fixing heater lamp (upper) from the fixing upper roller.


Fixing heater lamp (upper) (L2, L3)
Lamp terminal
Set screws

(5) Re-install the above parts in the opposite sequence to removal.

3. Replacing the Fixing Heater Lamp (lower) (L4)

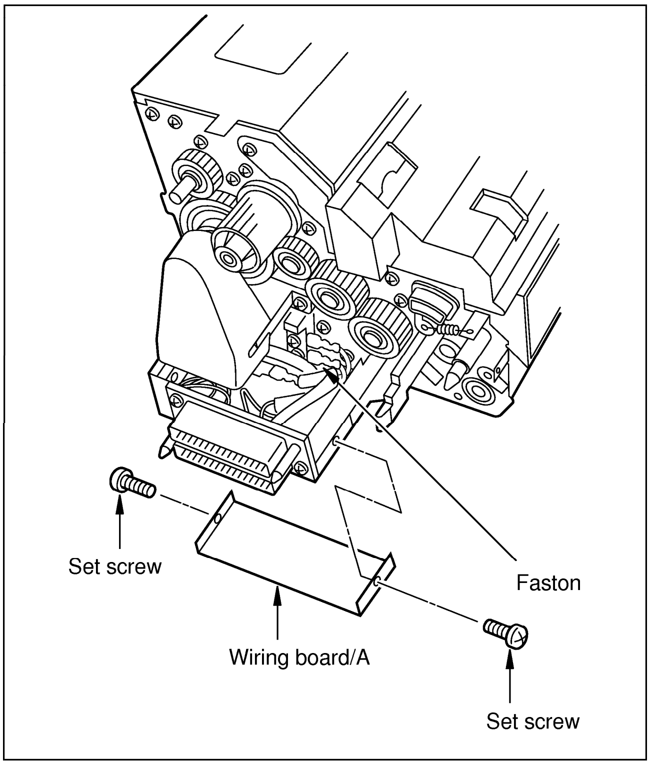
⚠ **Caution: Do not touch the fixing heater lamp (lower) (L4) with the bare hands.**

Caution: When disconnecting the faston of the fixing heater lamp, be sure to use radio pliers to fix the terminal.

a. Procedure

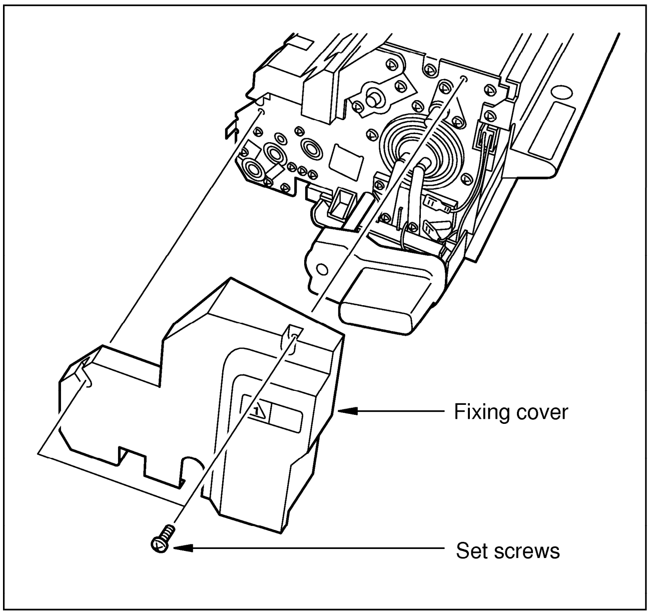
(1) Remove the fixing unit from the main body.

(2) Remove the two set screws, then remove the wiring board/A.

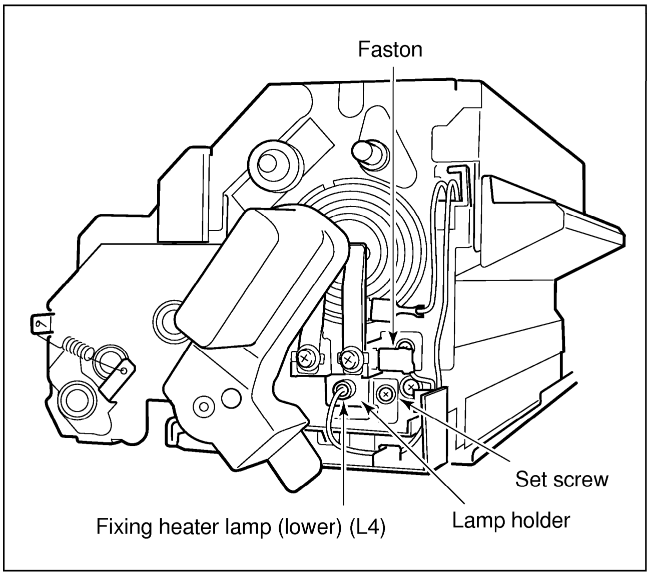

Set screw
Faston
Wiring board/A
Set screw

(3) Disconnect the faston from the fixing heater lamp (lower) from lower side. (Rear side)

(4) Remove the two set screws, then remove the fixing cover.


Fixing cover
Set screws

(5) Disconnect the faston from the fixing heater lamp (lower). (front side)
(6) Remove the set screw, then remove the lamp holder.
(7) Pull out the fixing heater lamp (lower) from the fixing lower roller.

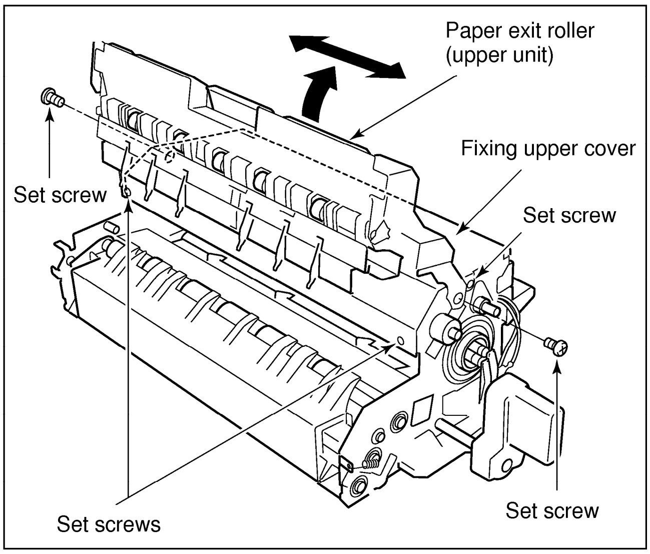

Faston
Set screw
Fixing heater lamp (lower) (L4)
Lamp holder

(8) Re-install the above parts in the opposite sequence to removal.

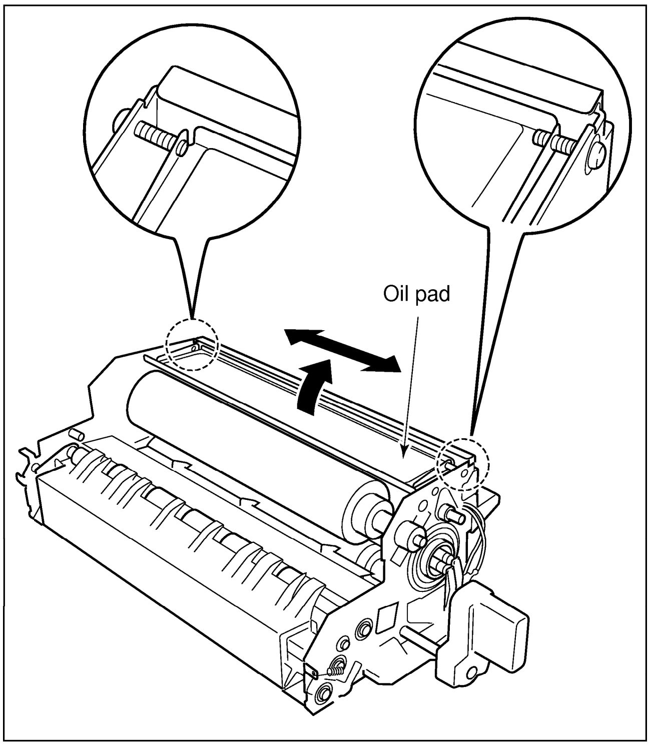
4. Replacing the Oil Pad

a. Procedure

(1) Remove the fixing unit.
(2) Remove the two set screws, then remove the fixing cover.
(3) Remove the set screw, then remove the paper exit roller (upper unit).
(4) Remove the four set screws, then remove the fixing upper cover.


Paper exit roller (upper unit)
Fixing upper cover
Set screw
Set screw
Set screw
Set screws

(5) Lift up the oil pad then slide it first to the rear side then raise the front side and slide to the front to remove it.



(6) Re-install the oil pad in the opposite sequence to removal.

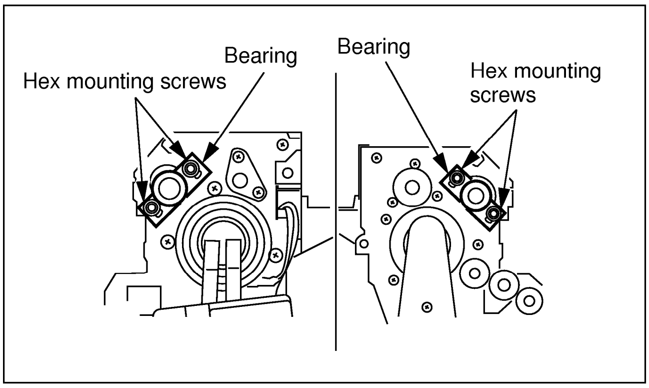
5. Replacing the Fixing Cleaning Roller and Oil Impregnated Roller

Caution:

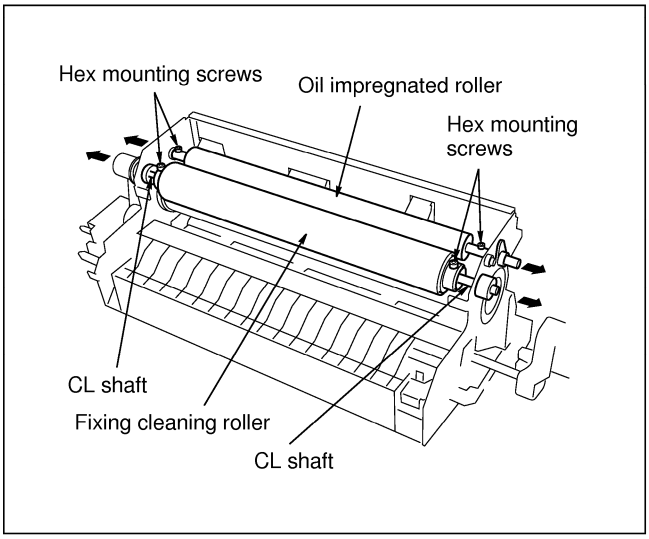
1. Push the fixing cleaning roller and the CL shaft firmly against each other.
2. Push down the bearing and fix it in place.
3. When re-installing the roller, tighten the hex bolts to a higher torque than normal.

a. Procedure

(1) Remove the fixing unit.
(2) Remove the two set screws, then remove the fixing cover.
(3) Remove the paper exit roller/upper unit, then remove the fixing upper cover and the oil pad.
(4) Slacken the four hex mounting screws fixing the bearing.


Hex mounting screws
Bearing
Bearing
Hex mounting screws

(5) Remove the two hex mounting screws, then pull out the CL shaft, and remove the fixing cleaning roller.
(6) Remove the two hex mounting screws, then pull out the shaft and remove the oil impregnated roller.


Hex mounting screws
Oil impregnated roller
Hex mounting screws
CL shaft
Fixing cleaning roller
CL shaft

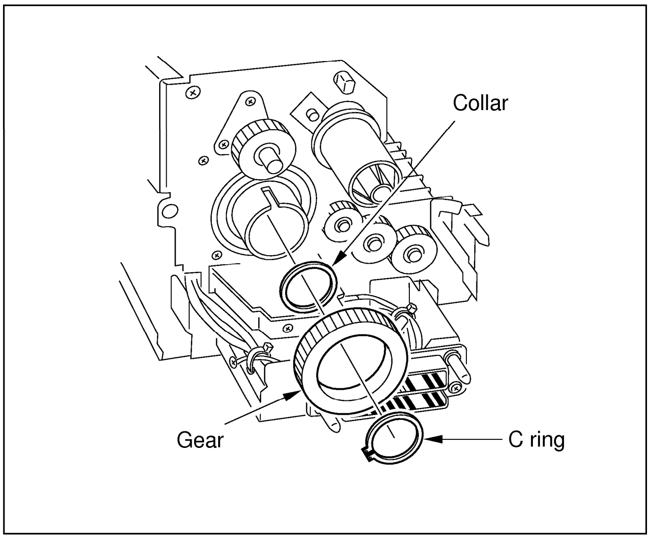
(7) Re-install the above parts in the opposite sequence to removal.

6. Removing and Re-installing the Fixing Upper Roller

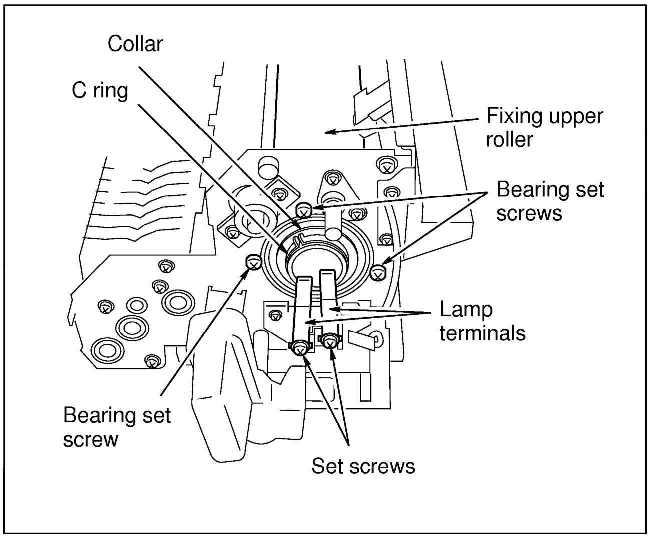
Caution: When replacing the heat insulation sleeves, coat the inside of the sleeves with Tri-flow, then fit the sleeves onto the fixing upper roller.

a. Procedure

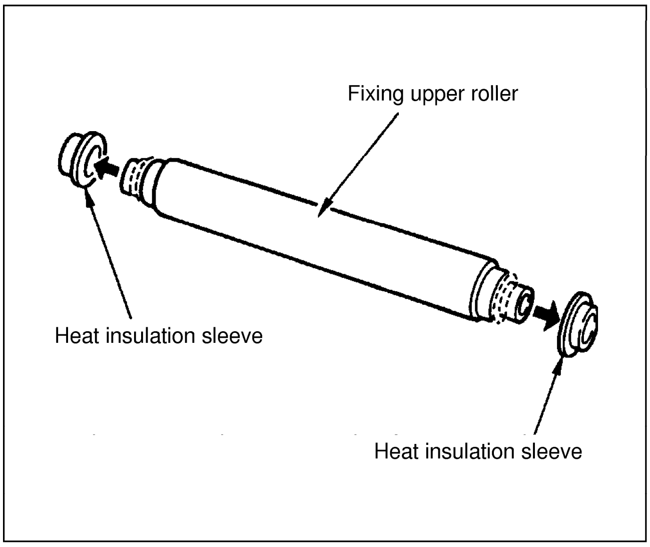
(1) Remove the paper exit roller (upper unit), fixing upper cover, oil pad, fixing heater lamp (upper), fixing cleaning roller and oil impregnated roller.
(2) Remove the C ring, gear and collar from the fixing upper roller (rear side).


Collar
Gear
C ring

(3) Remove the set screw, then remove the lamp terminal at the front.
(4) Remove the C ring, collar and three bearing set screws at the front.
(5) Remove the bearing, then pull out the fixing upper roller from the front.


Collar
C ring
Fixing upper roller
Bearing set screws
Lamp terminals
Bearing set screw
Set screws

(6) Remove the two heat insulation sleeves from the fixing upper roller.


Fixing upper roller
Heat insulation sleeve
Heat insulation sleeve

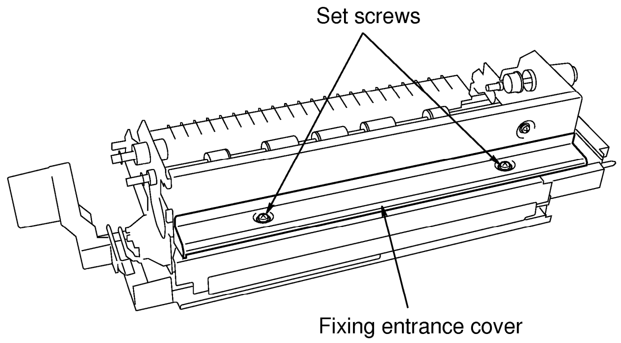
(7) Re-install the fixing upper roller in the opposite sequence to removal.

7. Removing and Re-installing the Fixing Lower Roller

a. Procedure

(1) Remove the fixing heater lamp (lower) and fixing upper roller.

(2) Remove the two set screws, then remove the fixing entrance cover.

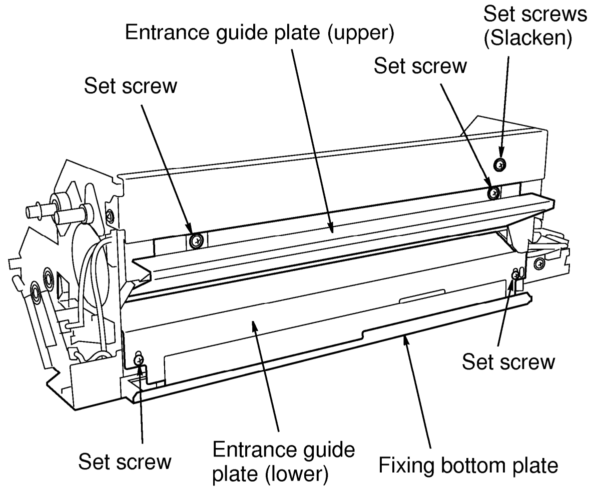

Set screws
Fixing entrance cover

(3) Slacken the set screw.

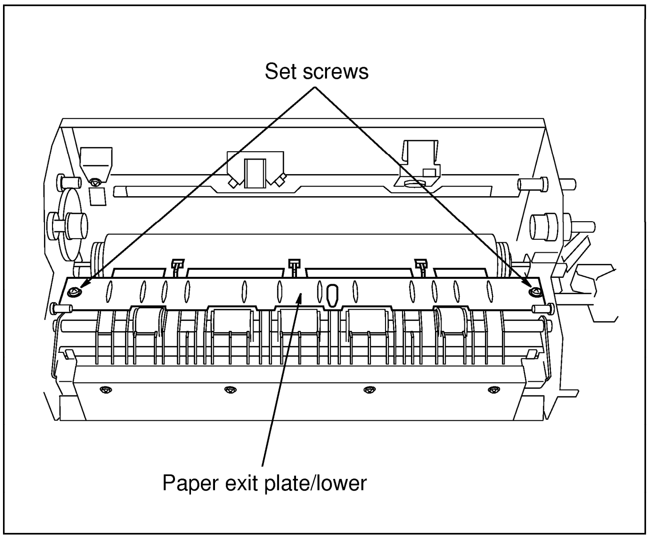
(4) Remove the two set screws, then remove the entrance guide plate (upper).

(5) Remove the two set screws, then remove the entrance guide plate (lower).

Note: When re-installing the entrance guide plate (lower), push it down to the bottom so that it touches the fixing bottom plate, then fix it in place.

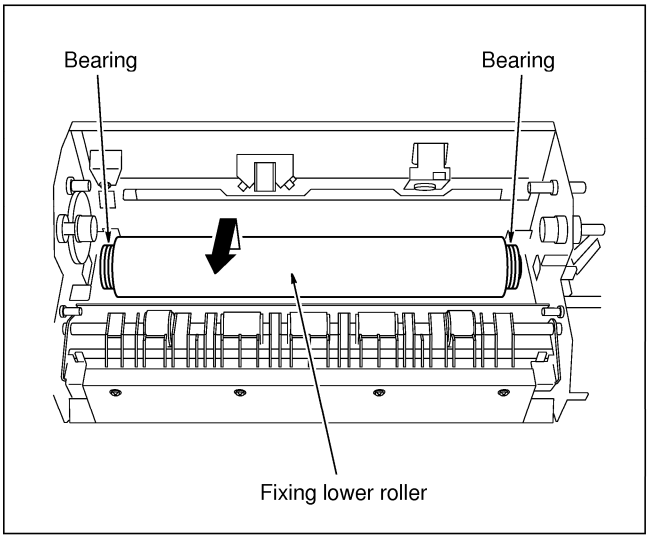

Set screws (Slacken)
Entrance guide plate (upper)
Set screw
Set screw
Set screw
Set screw
Entrance guide plate (lower)
Fixing bottom plate

(6) Remove the two set screws, then remove the paper exit plate/lower.


Set screws
Paper exit plate/lower

(7) Raise the fixing lower roller, then remove it from the paper exit side.

(8) Remove the two bearings from the fixing lower roller.


Bearing
Bearing
Fixing lower roller

(9) Re-install the fixing lower roller in the opposite sequence to removal.

8. Removing and Re-installing the Fixing Lower Claws

a. Procedure

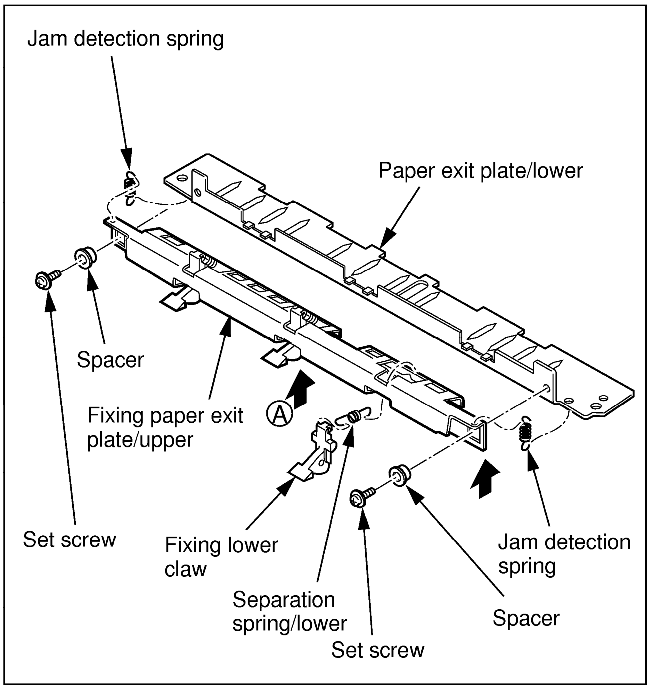
(1) Remove the paper exit plate/lower.

(2) Remove the two jam detection springs at the both ends of the fixing paper exit plate/lower.

(3) Remove the two set screws and remove the spacers and the fixing paper exit plate/upper.

(4) Remove the three separation springs/lower that support the fixing lower claws.

(5) Remove the three fixing lower claws.


Jam detection spring
Paper exit plate/lower
Spacer
Fixing paper exit plate/upper
A
Set screw
Fixing lower claw
Separation spring/lower
Set screw
Jam detection spring
Spacer

(6) Re-install the fixing lower claws in the opposite sequence to removal.

Caution: 1. When tightening the set screws, make sure the spacers do not ride up over the paper exit plate/upper.

2. After installing the paper exit plate/upper to the paper exit plate/lower, check whether or not the paper exit plate/upper is pushed back to its proper position by the jam detection spring when pushed in the direction of the arrow A in the diagram above.

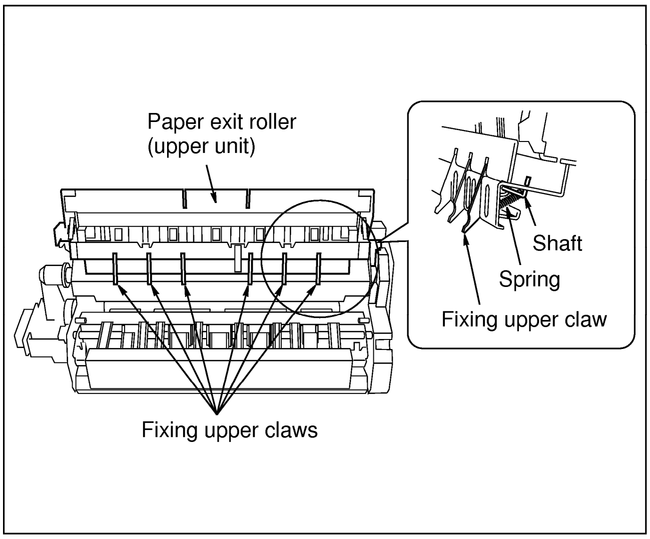
9. Removing and Re-installing the Fixing Upper Claws

a. Procedure

(1) Open the paper exit roller (upper unit).

(2) Remove the six springs attached to the fixing upper claws.

(3) Pull out the two shafts, each of which has three fixing upper claws fixed to it, to the outside, and remove the six fixing upper claws.


Paper exit roller
(upper unit)
Shaft
Spring
Fixing upper claw
Fixing upper claws

(4) Re-install the fixing upper claws in the opposite sequence to removal.

10. Removing and Re-installing Fixing Temperature Sensors 1 and 2

⚠Caution:

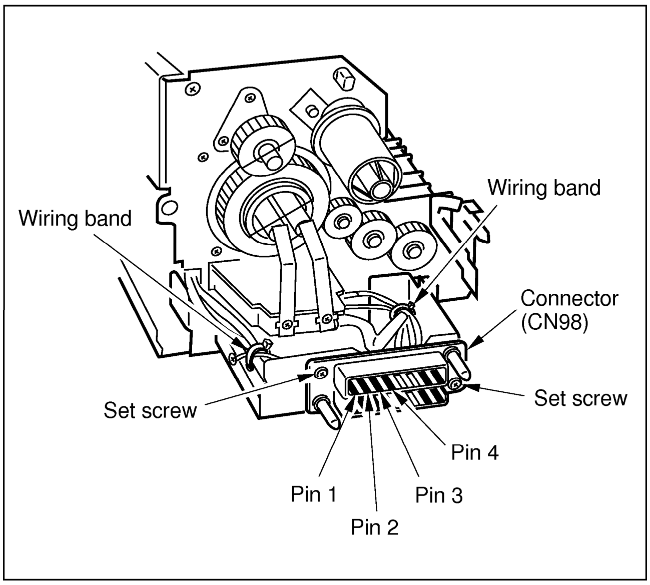
1. **After re-installing fixing temperature sensors 1 and 2, check to ensure that the sensor wires are not touching the fixing upper roller.**
2. **After re-installing fixing temperature sensor 2, check to ensure that the sensor touches the fixing upper roller.**
3. **Be sure to coat the set screws of the sensors with screw locking agent after re-installing the sensors.**

a. Removal procedure

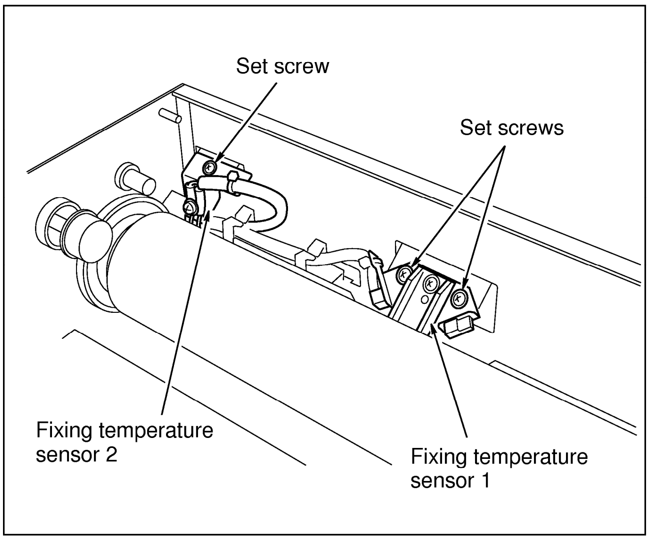
(1) Remove the paper exit roller (upper unit), fixing upper cover, oil pad, oil impregnated roller and the entrance guide plate (lower).

(2) Remove the two set screws, then release the connector (CN98).

(3) Cut the two wiring bands, then remove pins 1 to 4 of CN98 with a tweezers and so on.

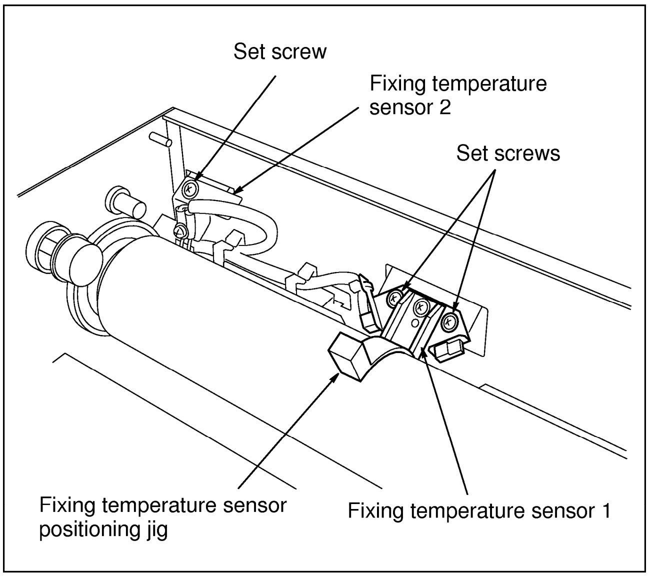

Wiring band
Wiring band
Connector
(CN98)
Set screw
Set screw
Pin 4
Pin 1
Pin 3
Pin 2

(4) Remove the two set screws, then remove the fixing temperature sensor 1.
(5) Remove the set screw, then remove the fixing temperature sensor 2.

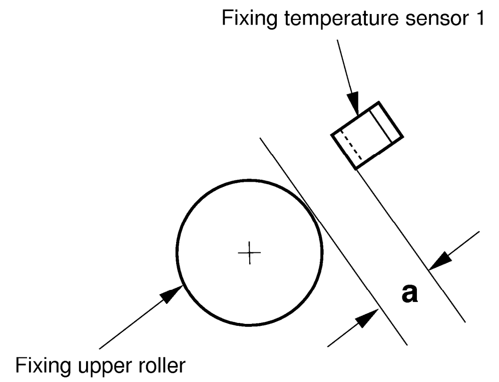

Set screw
Set screws
Fixing temperature sensor 2
Fixing temperature sensor 1

b. Installation procedure

(1) Fix the fixing temperature sensor 2 with the set screw, then place the sensor element in contact with the fixing upper roller.
(2) Set the fixing temperature sensor positioning jig between the fixing temperature sensor 1 and the fixing upper roller, then fix the fixing temperature sensor 1 with two set screws so that the clearance between the sensor and the fixing upper roller is within the standard value.


Set screw
Fixing temperature sensor 2
Set screws
Fixing temperature sensor positioning jig
Fixing temperature sensor 1

(a) Set the distance ‘a’ between the fixing upper roller and the fixing temperature sensor 1 so that it is equal to the thickness of the fixing temperature sensor positioning jig.


Fixing temperature sensor 1
a
Fixing upper roller

Standard: a =0.75±0.1mm

(3) Coat the set screw of each sensor with screw locking agent.
(4) Insert the connector pins on the end of the cable of each sensor to a position that corresponds to CN98.
(5) Re-install the other parts in the opposite sequence to removal.

11.Removing and Re-installing the Fixing Temperature Sensor 3

⚠Caution:

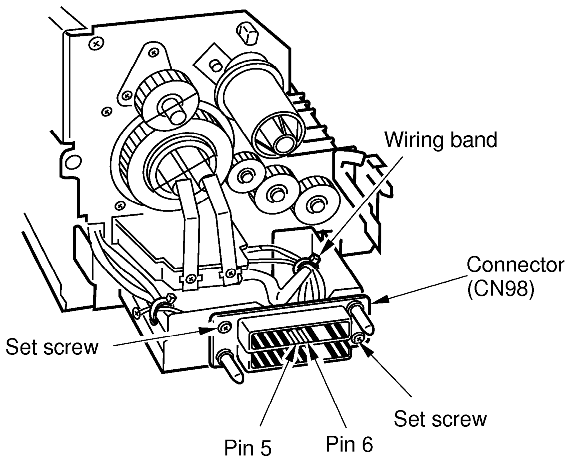
1. **After re-installing the fixing temperature sensor 3, check to ensure that the sensor wires are not touching the fixing lower roller.**
2. **Be sure to coat the set screws of the sensor 3 with screw locking agent after re-installing the sensor 3.**

a. Removal procedure

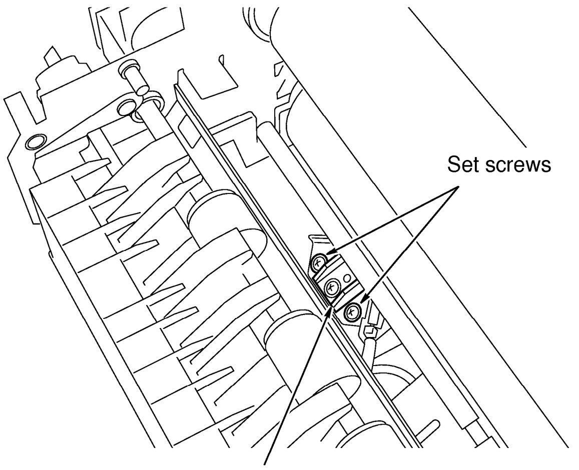
(1) Remove the paper exit roller (upper unit), fixing upper cover and paper exit plate/lower.

(2) Remove the two set screws, and then release the fixing of the connector (CN98).

(3) Cut the wiring band, then remove pins 5, 6 of CN98 with a tweezers and so on.

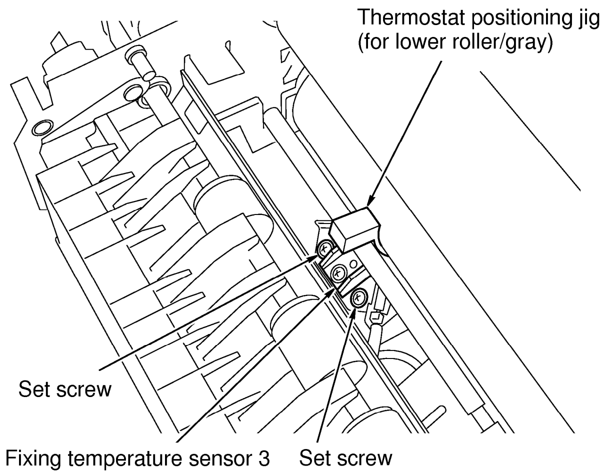

Wiring band
Connector (CN98)
Set screw
Set screw
Pin 5
Pin 6

(4) Remove the two set screws, then remove the fixing temperature sensor 3.

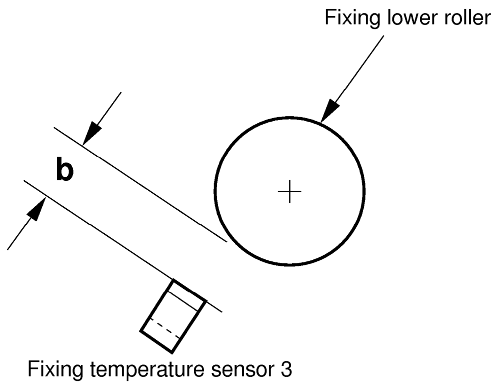

Set screws
Fixing temperature sensor 3

b. Installation procedure

(1) Set the thermostat positioning jig (for lower roller/gray) between the fixing temperature sensor 3 and the fixing lower roller, then fix the fixing temperature sensor 3 with two set screws so that the clearance between the sensor and the fixing lower roller is within the standard value.

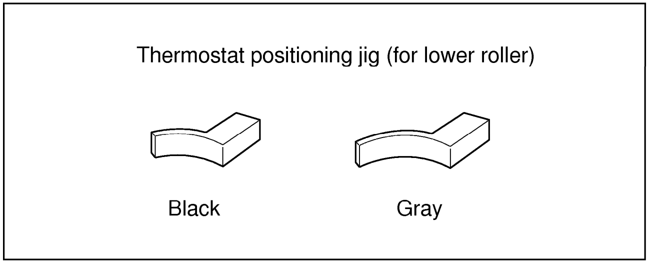

Thermostat positioning jig (for lower roller/gray)
Set screw
Fixing temperature sensor 3
Set screw

(a) Set the distance 'b' between the fixing lower roller and the fixing temperature sensor 3 so that it is equal to the thickness of the fixing temperature sensor positioning jig/gray.


Fixing lower roller
b
Fixing temperature sensor 3

Standard: b =1.75±0.25mm

(b) Remove the thermostat positioning jig (gray) after fixing it in place, and ensure that the thermostat positioning jig (black) cannot be inserted between the fixing lower roller and the fixing temperature sensor 3.



(2) Coat the set screw of sensor 3 with screw locking agent.
(3) Re-install the other parts in the opposite sequence to removal.

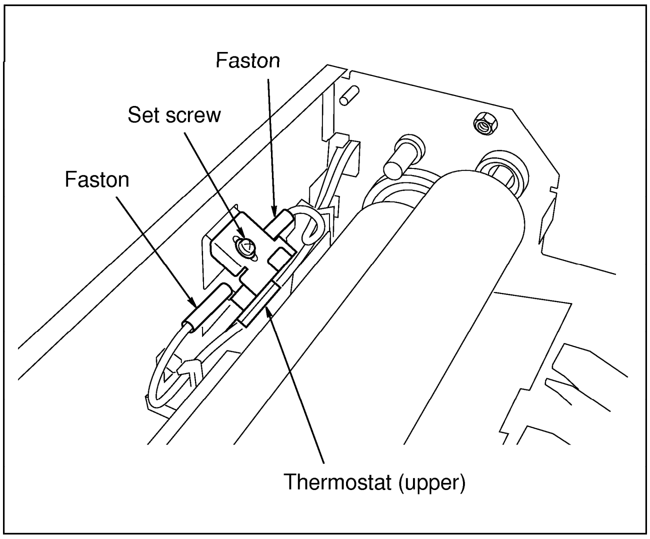
12. Removing and Re-installing the Thermostat (upper)

⚠**Caution:**

1. **After re-installing the thermostat (upper), check to ensure that the wiring is not touching the fixing upper roller.**
2. **Be sure to coat the set screw of the thermostat (upper) with screw locking agent after re-installing the thermostat.**

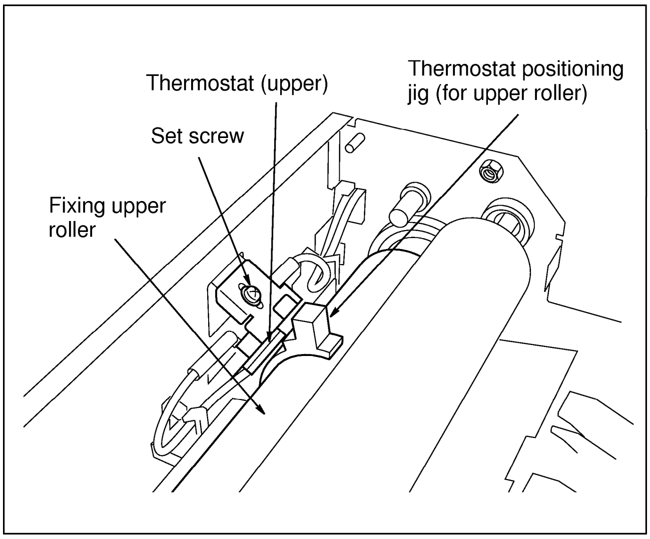
a. Removal procedure

(1) Remove the paper exit roller/upper unit, fixing upper cover, oil pad and oil impregnated roller.
(2) Disconnect the two fastons from the thermostat (upper).
(3) Remove the set screw, then remove the thermostat (upper).

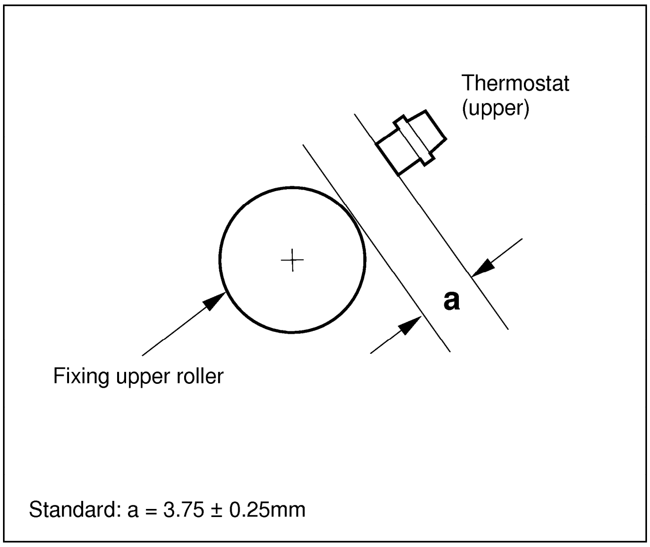


b. Installation procedure

(1) Set the thermostat positioning jig (for the upper roller) between the thermostat (upper) and the fixing upper roller, then fix the thermostat (upper) with the set screw so that the clearance between the thermostat (upper) and the fixing upper unit is the standard value.

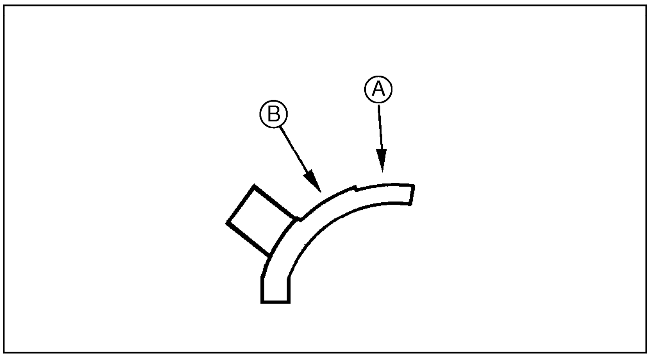

Thermostat (upper)
Thermostat positioning jig (for upper roller)
Set screw
Fixing upper roller

(a) Set the distance ‘a’ between the fixing upper roller and the thermostat (upper) so that it is equal to the thickness of thermostat positioning jig Ⓐ.


Thermostat (upper)
a
Fixing upper roller

Standard: a = 3.75 ± 0.25mm

(b) When adjusting, should not be allowed to run up over jig Ⓑ.



(2) Coat the set screw of the installed thermostat (upper) with screw locking agent.
(3) Connect the two fastons.
(4) Re-install the other parts in the opposite sequence to removal.

13. Removing and Re-installing the Thermostat (lower)

⚠Caution:

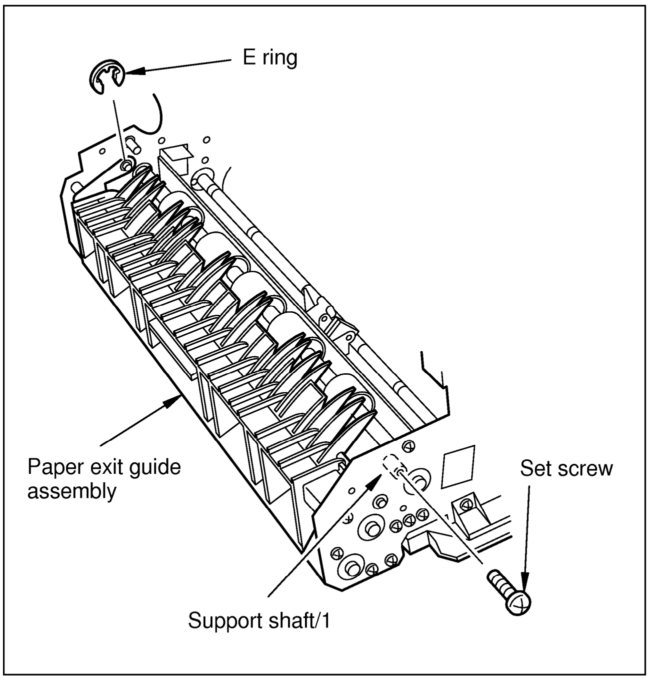
1. **After installing the thermostat (lower), ensure that the wiring is not touching the fixing lower roller.**
2. **Be sure to coat the set screw of the installed thermostat (lower) with screw locking agent.**

a. Removal procedure

(1) Remove the paper exit roller (upper unit), fixing upper cover and paper exit plate/lower.

(2) Remove the set screw, then remove the support shaft/1.

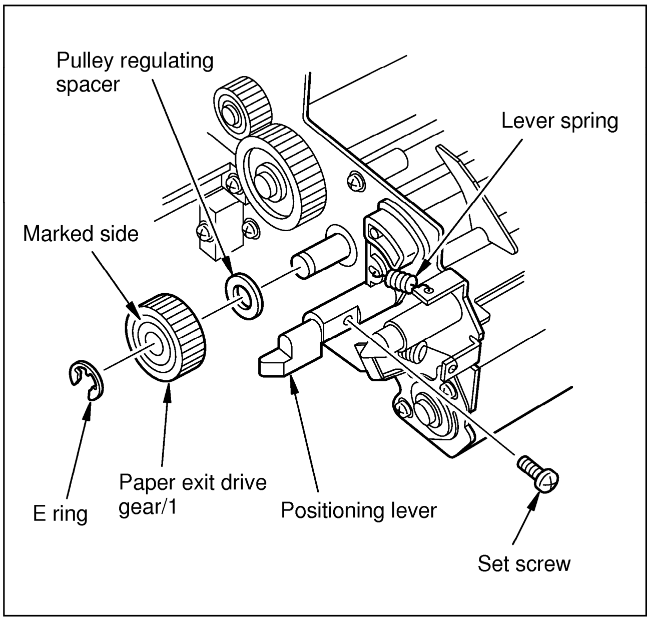
(3) Remove the E ring, then remove the paper exit guide assembly.


E ring
Paper exit guide assembly
Set screw
Support shaft/1

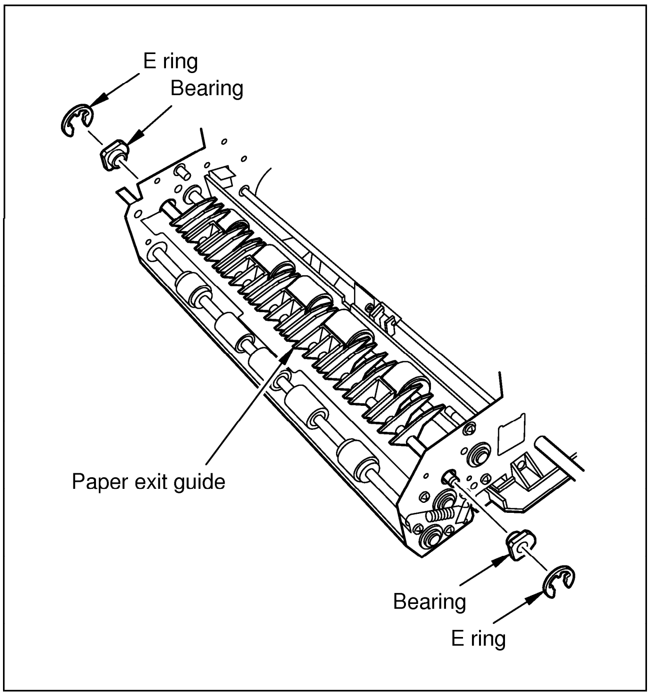
(4) Remove the set screw and the lever spring, then remove the positioning lever.

(5) Remove the E ring, then remove the paper exit drive gear/1 and the pulley regulating spacer.

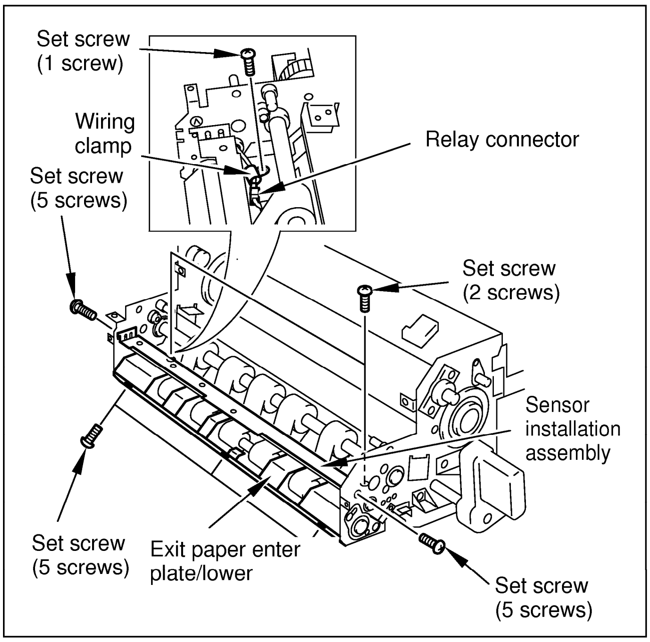
Note: When re-installing the paper exit drive gear/1, ensure that the side with black markings is facing outwards.


Pulley regulating spacer
Lever spring
Marked side
E ring
Paper exit drive gear/1
Positioning lever
Set screw

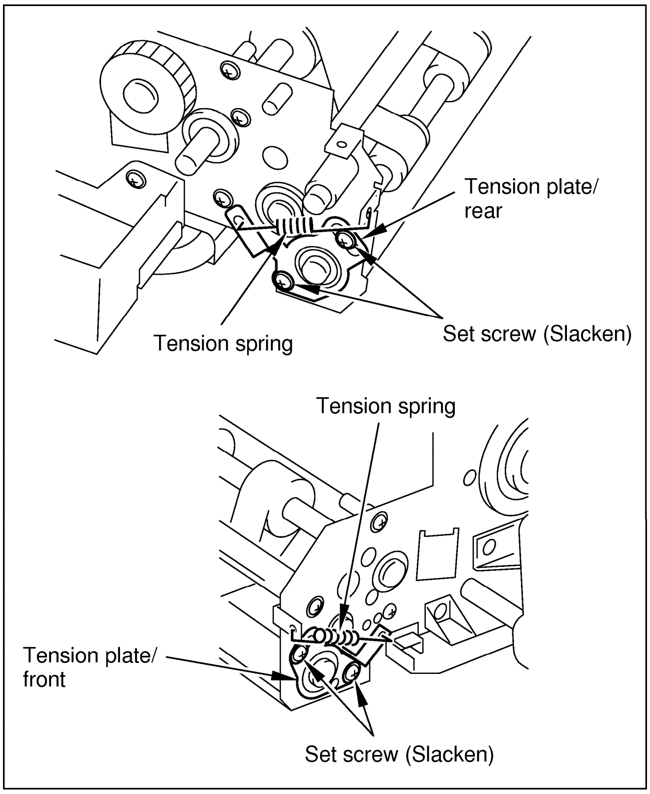
(6) Remove the two E rings and the two bearings, then remove the paper exit guide.


E ring
Bearing
Paper exit guide
Bearing
E ring

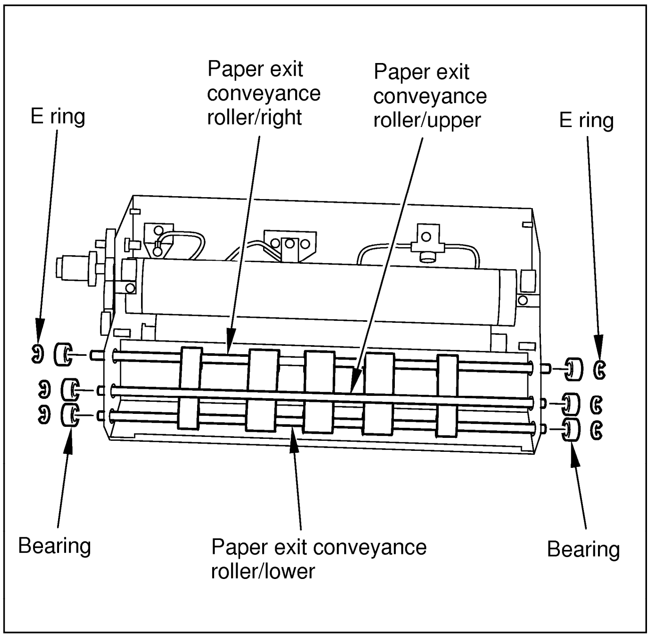
(7) Remove the set screw, then remove the wiring clamp and the relay connector.
(8) Remove the two set screws, then remove the sensor installation assembly.
(9) Remove the five set screws, then remove the exit paper entrance plate/lower.


Set screw
(1 screw)
Wiring clamp
Relay connector
Set screw
(5 screws)
Set screw
(2 screws)
Sensor installation assembly
Set screw
(5 screws)
Exit paper enter plate/lower
Set screw
(5 screws)

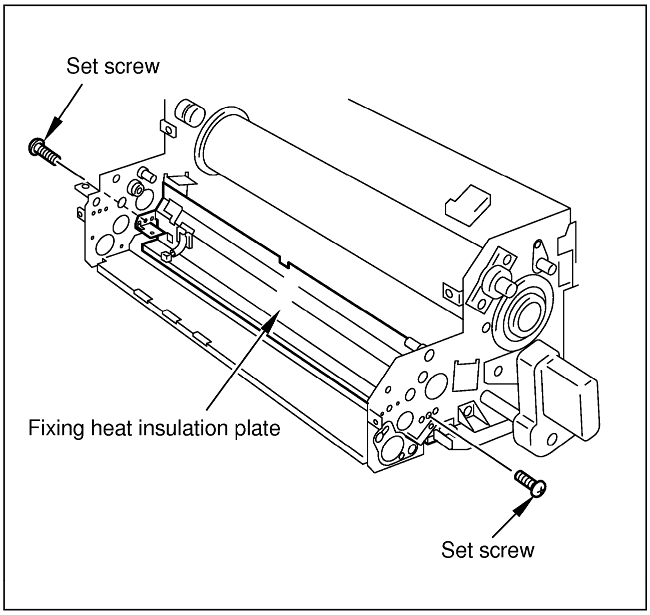
(10) Slacken each of the two set screws of the tension plate/ front and the tension plate/rear.
(11) Remove the 2 tension springs.


Tension plate/
rear
Tension spring
Set screw (Slacken)
Tension spring
Tension plate/
front
Set screw (Slacken)

(12) Remove the two E-rings and the two bearings from the paper exit conveyance roller/upper/middle/lower, then remove the decurler unit together with the belt.

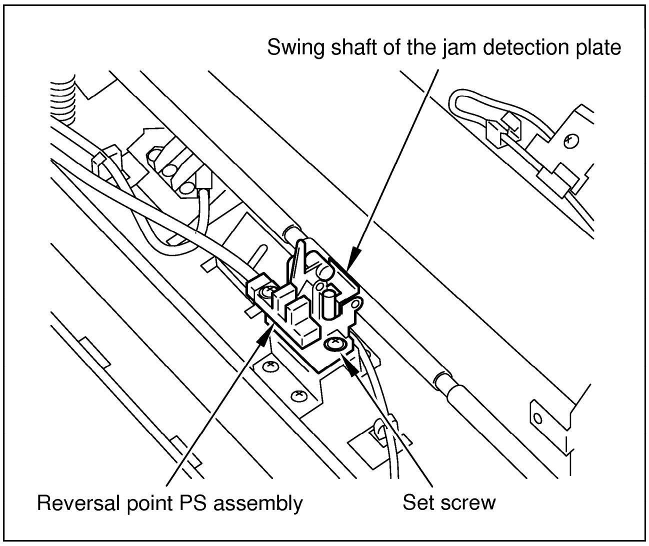

E ring
Paper exit conveyance roller/right
Paper exit conveyance roller/upper
E ring
Bearing
Paper exit conveyance roller/lower
Bearing

(13) Remove the two set screws, then remove the fixing heat insulation plate.


Set screw
Fixing heat insulation plate
Set screw

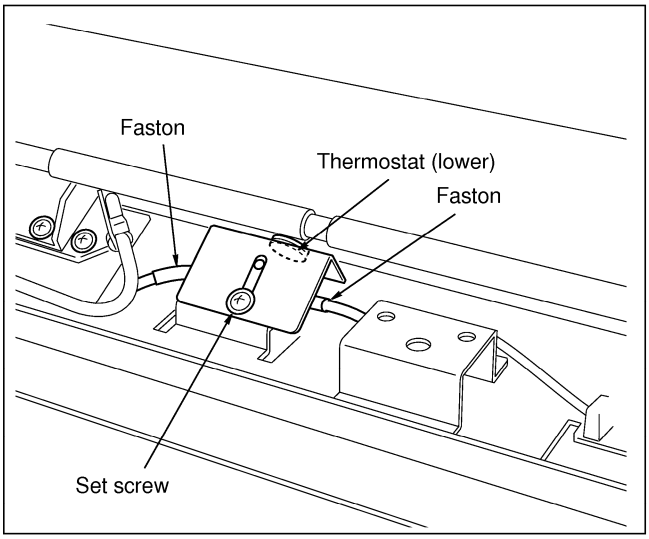
(14) Remove the set screw, then remove the reversal point PS assembly.

Note: When installing the reversal point PS assembly, check to ensure that the swing shaft of the jam detection plate is down.


Swing shaft of the jam detection plate
Reversal point PS assembly
Set screw

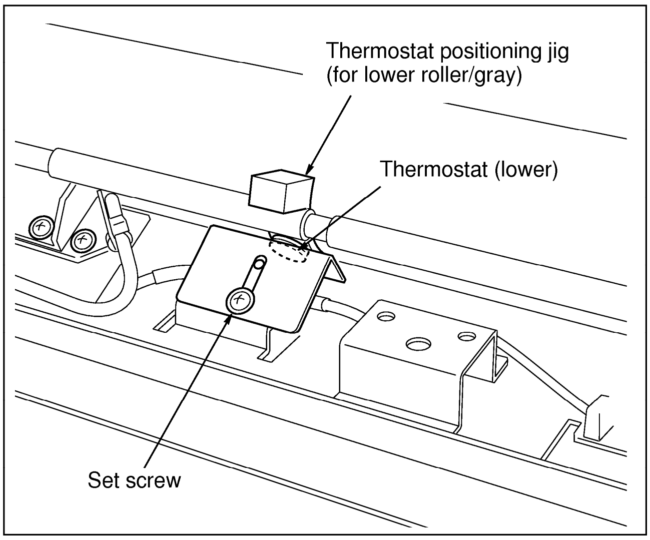
(15) Disconnect the two fastons connected to the thermostat (lower).

(16) Remove the set screw, then remove the thermostat (lower).

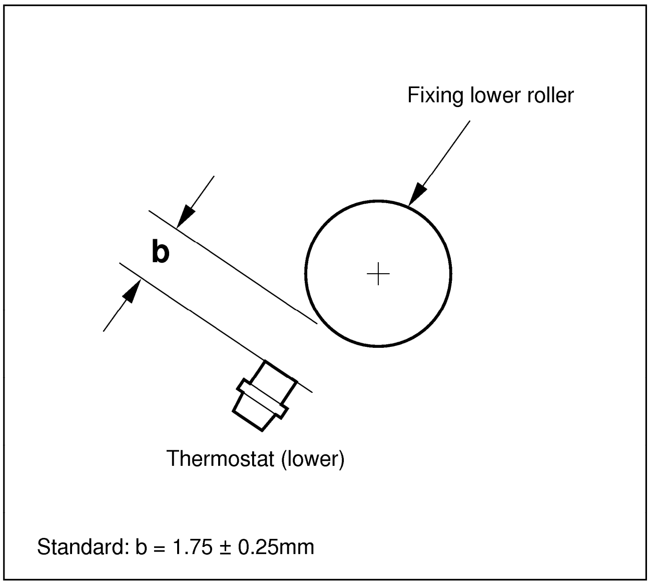

Faston
Thermostat (lower)
Faston
Set screw

b. Installation procedure

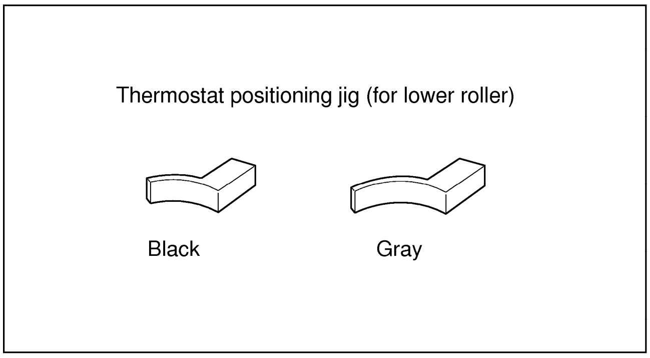
(1) Set the thermostat positioning jig (for the lower roller/gray) between the thermostat (lower) and the fixing lower roller, then fix the thermostat (lower) with the set screw so that the clearance between the thermostat (lower) and the fixing lower roller is the standard value.


Thermostat positioning jig
(for lower roller/gray)
Thermostat (lower)
Set screw

(a) Set the distance “b” between the fixing lower roller and the thermostat (lower) so that it is equal to the thickness of thermostat positioning jig (gray).

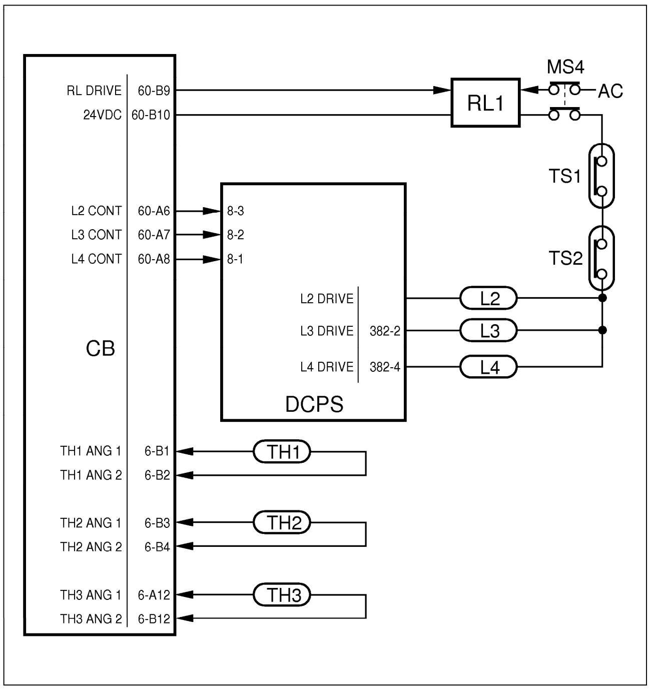

Fixing lower roller
b
Thermostat (lower)
Standard: b = 1.75 ± 0.25mm

(b) Remove the thermostat positioning jig (gray) after fixing it in place, and ensure that the thermostat positioning jig (black) cannot be inserted between the fixing lower roller and the thermostat (lower).


Thermostat positioning jig (for lower roller)
Black
Gray

(2) Coat the set screw of the installed thermostat (lower) with the screw locking agent.
(3) Connect the two fastons.
(4) Re-install the other parts in the opposite sequence to removal.

[4] Fixing Temperature Control


CB
RL DRIVE 60-B9
24VDC 60-B10
L2 CONT 60-A6
L3 CONT 60-A7
L4 CONT 60-A8
TH1 ANG 1 6-B1
TH1 ANG 2 6-B2
TH2 ANG 1 6-B3
TH2 ANG 2 6-B4
TH3 ANG 1 6-A12
TH3 ANG 2 6-B12
DCPS
8-3
8-2
8-1
L2 DRIVE
L3 DRIVE 382-2
L4 DRIVE 382-4
RL1
MS4
AC
TS1
TS2
L2
L3
L4
TH1
TH2
TH3

The fixing upper roller is heated by L2 (fixing heater lamp 1) and L3 (fixing heater lamp 2), and the fixing lower roller is heated by L4 (fixing heater lamp 3). The CB detects the temperature of the fixing upper roller by means of TH1 (fixing temperature sensor 1) and controls L2, L3 and L4 via DCPS.

1. Operation

a. Temperature control

(1) Warm up

The CB (control board) turns ON the fixing heater lamp circuit in DCPS (DC power supply unit) as soon as the main switch is turned ON, causing L2 , L3 and L4 to go ON until the fixing upper roller reaches the specified temperature. After the finish of warmup, L3 and L4 goes ON and OFF in synchronism with L2.

(Set Temperature)
200°C
(Warm up time)
Less than 6.5min. (Room temp. : 20°C)[*1]

[*1] 6.5 min. is the machine for the 230 VAC specification.
Warm-up time differs depend on the power source (voltage).

Mode \ Lamp	L2	L3	L4
Warming up	ON	ON	ON
In idling	ON/OFF	ON/OFF	ON/OFF
In copying (in scanning)	ON/OFF	ON/OFF	OFF
In copying (others)	ON	ON	OFF

b. Protection against abnormality

TS1 (thermostat (upper)) is used to prevent the temperature of the fixing upper roller from rising abnormally, and TS2 (thermostat (lower)) is used to prevent the temperature of the fixing lower roller from rising abnormally. These thermostats are not in contact with the respective rollers. The operating temperature of each thermostat is shown below.

TS1: Approx. 180°C
TS2: Approx. 110°C

c. MS4 (fixing set interlock)

The fixing heater remains energized even if the front door is opened, however if the fixing pressure lever is moved to the release side, MS4 goes OFF and the flow of current to the fixing heater is cut off.

2. Signals

a. Input signals

(1) TH1 ANG 1, 2 (TH1→CB)
TH1 output signal
This signal outputs a voltage that is proportional to the surface temperature at the center of the fixing upper roller.
This signal is used for temperature control and also for detecting an abnormally high temperature or other abnormality.

(2) TH2 ANG 1, 2 (TH2→CB)
TH2 output signal
This signal outputs a voltage proportional to the surface temperature at the end of the fixing upper roller. It is not directly related to temperature control but is used for detecting an abnormality.

(3) TH3 ANG 1, 2 (TH3→CB)
TH3 output signal
This signal outputs a voltage proportional to the surface temperature at the end of the fixing lower roller. It is not directly related to temperature control but is used for detecting an abnormality.

b. Output signals

(1) L2 CONT (CB→DCPS)
Signal which controls the ON/OFF state of L2
[L]: L2 ON
[H]: L2 OFF

(2) L3 CONT (CB→DCPS)
Signal which controls the ON/OFF state of L3
[L]: L3 ON
[H]: L3 OFF

(3) L4 CONT (CB→DCPS)
Signal which controls the ON/OFF state of L4
[L]: L4 ON
[H]: L4 OFF

(4) L2 DRIVE (DCPS→L2)
L2 AC(N) power supply line.
The AC power supply is switched ON or OFF according to L2 CONT.

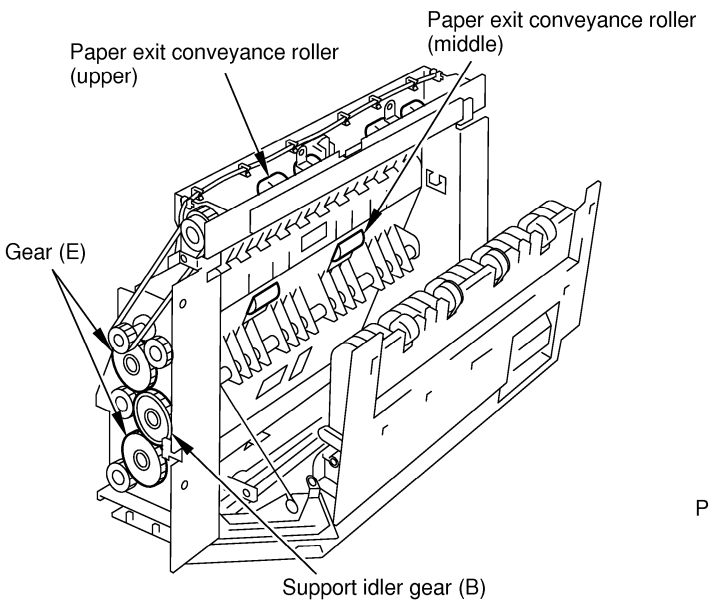
(5) L3 DRIVE (DCPS→L3)
L3 AC(N) power supply line.
The AC power supply is switched ON or OFF according to L3 CONT.

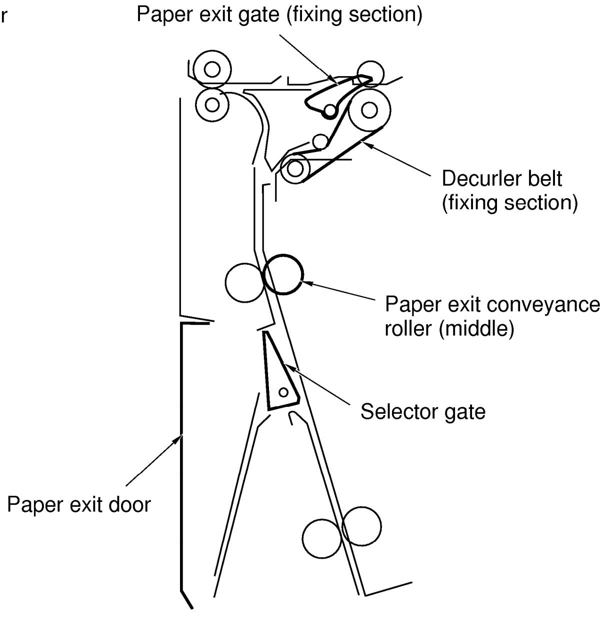
(6) L4 DRIVE (DCPS2→L4)
L4 AC(N) power supply line.
The AC power supply is switched ON or OFF according to L4 CONT.

(7) RL DRIVE (CB→RL1)
Signal which controls RL1
This signal becomes [H] if an abnormality occurs in the machine, causing RL1 to go OFF.

REVERSAL/PAPER EXIT SECTION

[1] Composition


Paper exit conveyance roller (upper)
Paper exit conveyance roller (middle)
Gear (E)
Support idler gear (B)


Paper exit gate (fixing section)
Decurler belt (fixing section)
Paper exit conveyance roller (middle)
Selector gate
Paper exit door

[2] Mechanisms

	Mechanism	Method
*1	Paper path selection a. Straight/reverse paper exit b. Paper exit/ADU	 a. Paper exit gate b. Selector gate
	Paper conveyance	Roller conveyance

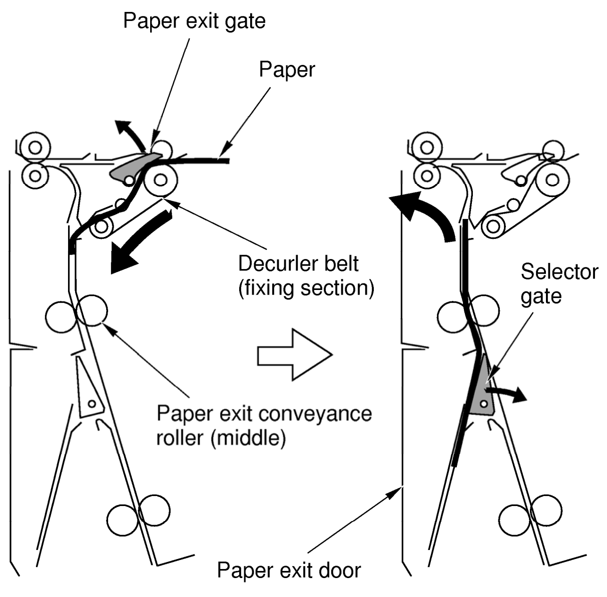
*1: Paper path selection

- The paper exit gate switches the path of the paper fed from the main body to the straight exit or the reversal exit. The paper exit gate is located in the fixing section, and operates according to the ON/OFF of SD153 (paper exit gate SD).
- The selector gate switches the path of the paper fed into the reversal/paper exit section to paper exit or ADU conveyance. The selector gate operates according to the ON/OFF of SD160 (reversal gate SD).

a. Reverse paper exit operation

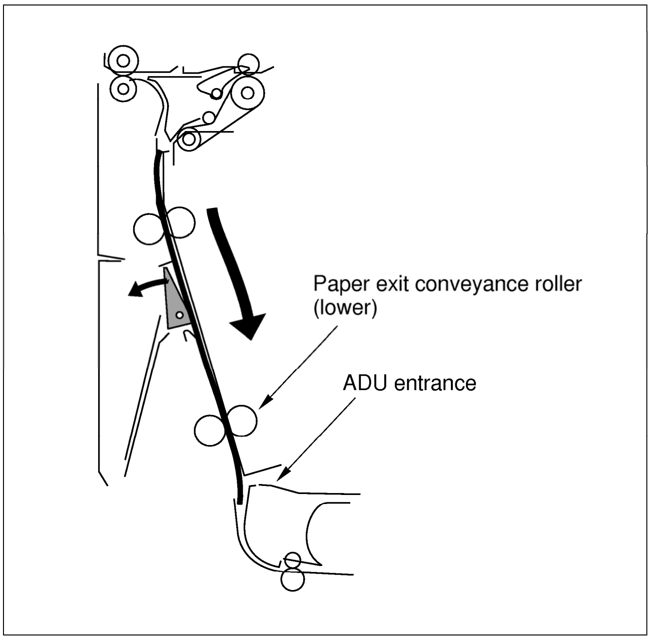
The paper exit gate guides the paper through the decurler belt of the fixing section. The leading edge of the paper is guided towards the finisher side by the selector gate.

When the trailing edge of the paper passes the decurler belt of the fixing section, the rotation of the paper exit conveyance roller (middle) reverses, and the paper exits in an inverted state.


Paper exit gate
Paper
Decurler belt (fixing section)
Paper exit conveyance roller (middle)
Selector gate
Paper exit door

b. ADU conveyance operation

The paper exit conveyance roller (lower) feeds the paper guided by the selector gate to the ADU entrance.


Paper exit conveyance roller (lower)
ADU entrance

[3] Disassembly and Assembly

1. Removing and Re-installing the Reversal/Paper Exit Unit

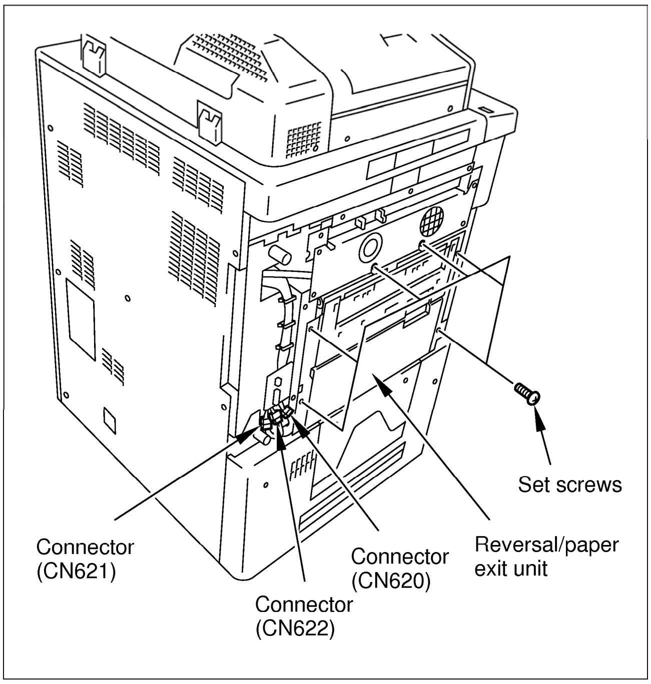
⚠ **Caution: Be sure that the power cord has been unplugged from the power outlet.**

a. Procedure

(1) Remove the left side upper cover.

(2) Remove the three relay connectors (CN620, 621, 622).

(3) Remove the six set screws, then remove the reversal/paper exit unit.


Set screws
Connector (CN621)
Connector (CN620)
Reversal/paper exit unit
Connector (CN622)

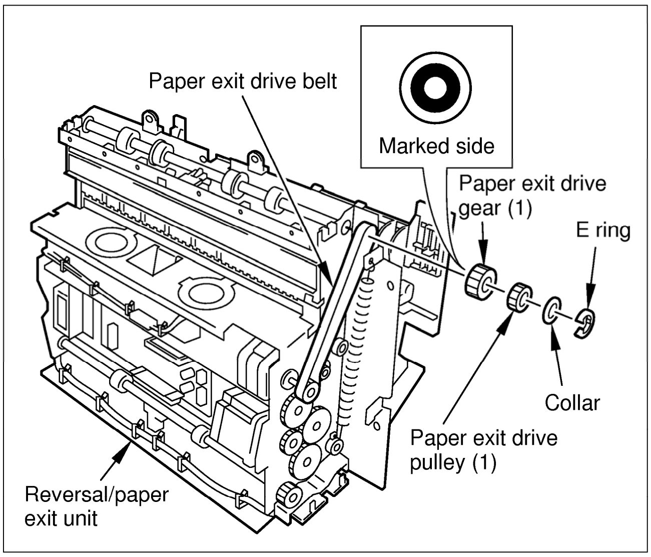
(4) Re-install the reversal/paper exit unit in the opposite sequence to removal.

2. Removing and Re-installing the Paper Exit Conveyance Roller (Upper)

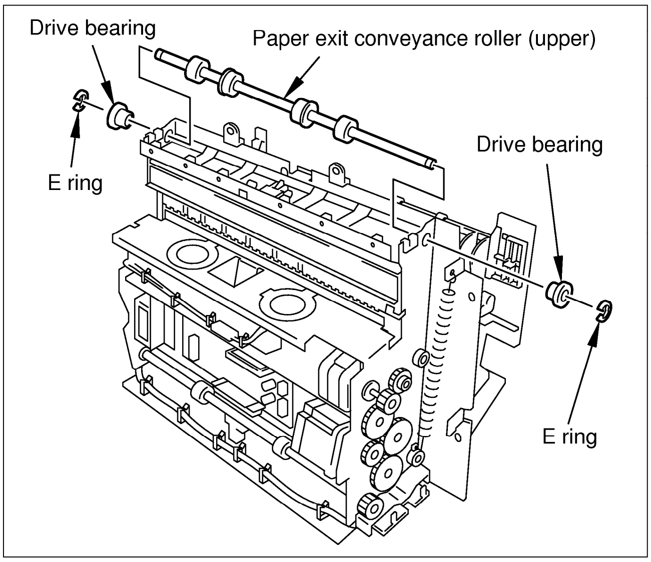
⚠Caution: Be sure that the power cord has been unplugged from the power outlet.

a. Procedure

(1) Remove the reversal/paper exit unit.
(2) Remove the E ring, then remove the collar.
(3) Remove the paper exit drive belt, the paper exit drive pulley (1), and the paper exit drive gear (1).


Paper exit drive belt
Marked side
Paper exit drive gear (1)
E ring
Collar
Paper exit drive pulley (1)
Reversal/paper exit unit

(4) Remove the two E rings, then remove the two drive bearings.
(5) Remove the paper exit conveyance roller (upper).


Drive bearing
Paper exit conveyance roller (upper)
E ring
Drive bearing
E ring

(6) Re-install the paper exit conveyance roller (upper) in the opposite sequence to removal.

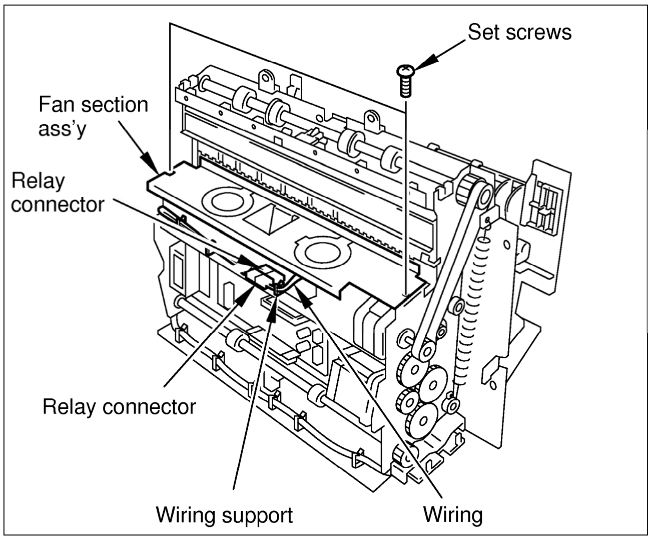
Note: 1. When re-installing the paper exit drive gear (1), ensure that the marked side (black) is facing inside.
2. Ensure that the convex surface of the collar is facing outside.

3. Removing and Re-installing the Paper Exit Conveyance Roller (Middle)

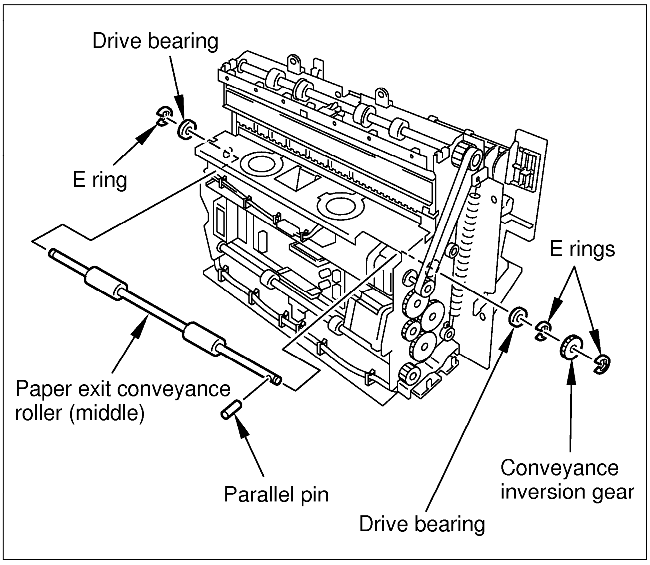
⚠Caution: Be sure that the power cord has been unplugged from the power outlet.

a. Procedure

(1) Remove the reversal/paper exit unit.
(2) Remove the wiring from the wiring support.
(3) Remove the two relay connectors.
(4) Remove the two set screws, then remove the fan section ass'y without applying undue force on the wiring.


Set screws
Fan section ass'y
Relay connector
Relay connector
Wiring support
Wiring

(5) Remove the E ring, then remove the conveyance inversion gear and the parallel pin.
(6) Remove the two E rings, then remove the two drive bearings.
(7) Remove the paper exit conveyance roller (middle).


Drive bearing
E ring
E rings
Paper exit conveyance roller (middle)
Parallel pin
Drive bearing
Conveyance inversion gear

(8) Re-install the paper exit conveyance roller (middle) in the opposite sequence to removal.

4. Removing and Re-installing the Paper Exit Conveyance Roller (Lower)

⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

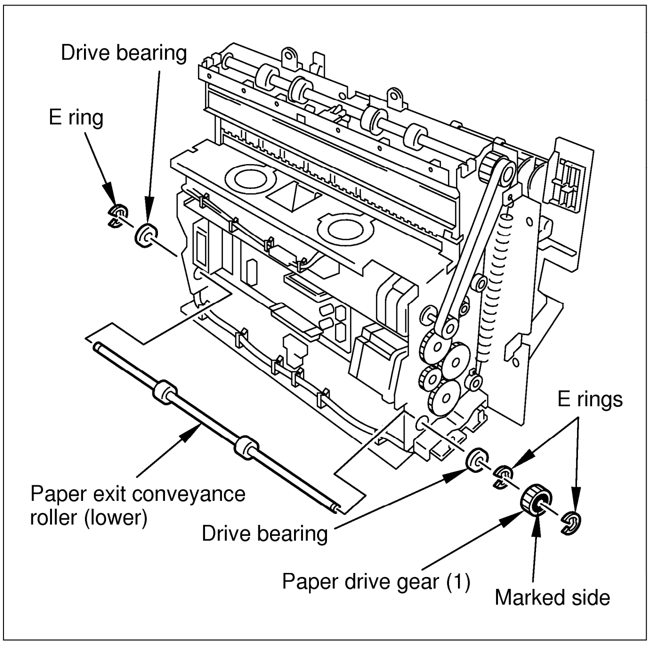
a. Procedure

(1) Remove the reversal/paper exit unit.

(2) Remove the E ring, then remove the paper drive gear (1).

(3) Remove the two E rings, then remove the two drive bearings.

(4) Remove the paper exit conveyance roller (lower).


Drive bearing
E ring
E rings
Paper exit conveyance roller (lower)
Drive bearing
Paper drive gear (1)
Marked side

(5) Re-install the paper exit conveyance roller (lower) in the opposite sequence to removal.

Note: When re-installing the paper exit drive gear (1), ensure that the marked side (black) is facing outside.

5. Removing and Re-installing the Support Idler Gear (B) and (E)

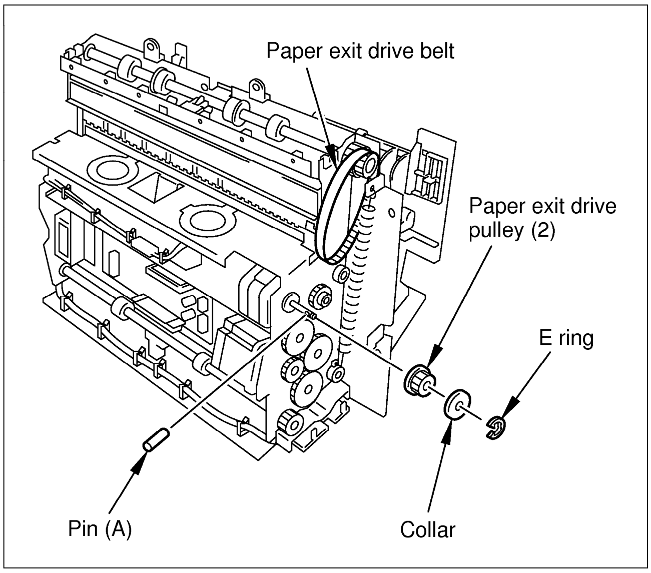
⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

a. Procedure

(1) Remove the reversal/paper exit unit.

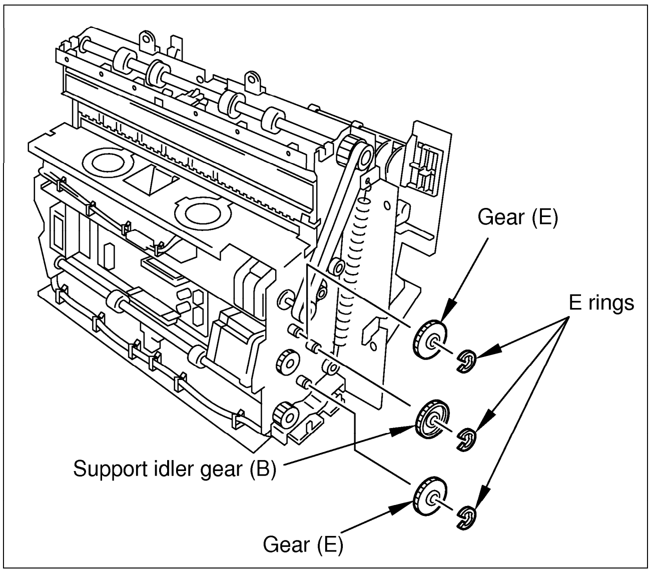
(2) Remove the E ring, then remove the collar and the paper exit drive belt.

(3) Remove the paper exit drive pulley (2) and pin (A).


Paper exit drive belt
Paper exit drive pulley (2)
E ring
Pin (A)
Collar

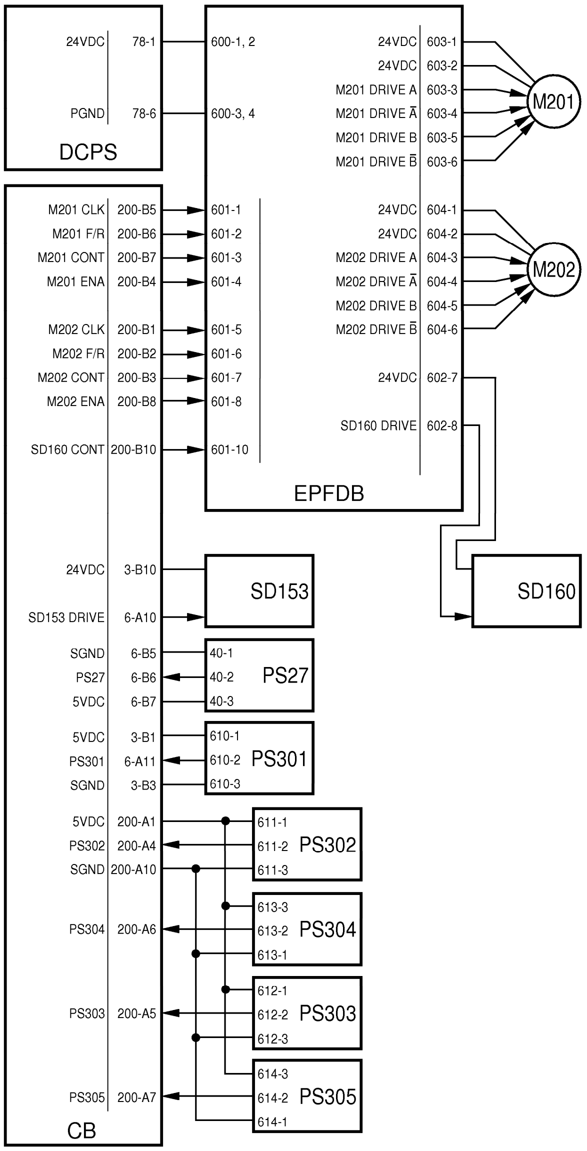
(4) Remove the two E rings, then remove the two gears (E).

(5) Remove the E ring, then remove the support idler gear (B).


Gear (E)
E rings
Support idler gear (B)
Gear (E)

(6) Re-install the support idler gear (B) and (E) in the opposite sequence to removal.

[4] Reversal Paper Exit Control


DCPS
24VDC 78-1
PGND 78-6
EPFDB
600-1, 2
600-3, 4
24VDC 603-1
24VDC 603-2
M201 DRIVE A 603-3
M201 DRIVE Ā 603-4
M201 DRIVE B 603-5
M201 DRIVE B̄ 603-6
M201
24VDC 604-1
24VDC 604-2
M202 DRIVE A 604-3
M202 DRIVE Ā 604-4
M202 DRIVE B 604-5
M202 DRIVE B̄ 604-6
M202
24VDC 602-7
SD160 DRIVE 602-8
M201 CLK 200-B5 601-1
M201 F/R 200-B6 601-2
M201 CONT 200-B7 601-3
M201 ENA 200-B4 601-4
M202 CLK 200-B1 601-5
M202 F/R 200-B2 601-6
M202 CONT 200-B3 601-7
M202 ENA 200-B8 601-8
SD160 CONT 200-B10 601-10
24VDC 3-B10
SD153 DRIVE 6-A10
SD153
SD160
SGND 6-B5 40-1
PS27 6-B6 40-2
5VDC 6-B7 40-3
PS27
5VDC 3-B1 610-1
PS301 6-A11 610-2
SGND 3-B3 610-3
PS301
5VDC 200-A1 611-1
PS302 200-A4 611-2
SGND 200-A10 611-3
PS302
613-3
PS304 200-A6 613-2
613-1
PS304
612-1
PS303 200-A5 612-2
612-3
PS303
614-3
PS305 200-A7 614-2
614-1
PS305
CB

Paper fed from the fixing section is conveyed to the paper exit tray or the ADU section via the reversal paper exit section. The paper exit gate and the reversal gate are switched by SD153 (paper exit gate) and SD160 (reversal gate) respectively. Also, the reversal paper exit roller is driven by M201 (reversal paper exit), and the paper exit roller is driven by M202 (paper exit). M201, M202, and SD160 are controlled by CB (control board) via EPFDB (paper exit drive board), and SD153 is driven directly by CB.

Signals in relation are PS27 (fixing paper exit), PS301 (reversal point), PS302 (reversal paper feed point), PS303 (ADU gate), PS304 (ADU paper feed), and PS305 (reversal paper exit).

1. Operation

a. Paper exit gate control

The paper exit gate is usually opened, and paper fed from the fixing section is conveyed to the reversal paper exit section.

Paper is exited by operating SD153 in the following timing when straight (face up) paper exit is selected.

- ON timing
  When PS14 (registration) detects the trailing edge of the paper and goes OFF.
- OFF timing
  When PS27 (fixing paper exit) detects the trailing edge of the paper and goes OFF.

b. Reversal gate control

SD160 is operated when conveying the paper fed to the reversal paper exit section to the ADU. Normally, the reversal gate is closed, and paper will not be conveyed to the ADU.

- ON timing
  When PS301 detects the leading edge of the paper.
- OFF timing
  When PS302 detects the leading edge of the paper.

c. M201 (reversal paper exit) control

(1) Reversal paper exit

(1) Forward rotation at low speed after the specified time from ON of the start button.
(2) Switches rotation speed to high speed when PS27 detects the trailing edge of a paper.
(3) Rotation reverses and rotates at high speed after the specified time when PS301 detects the trailing edge of a paper and exits paper.
(4) Rotates forward and switches rotation speed to low speed after the specified time from when PS302 detects the trailing edge of a paper.
(5) Repeat Steps (1) to (4) when executing paper exit for multiple sheets of paper.

As a result of the above operations, the paper fed to the reversal paper exit section by M201 is reversed, and the conveying operation is passed back to M201.

(2) ADU conveyance

(1) After the specified time from when the start button is pressed, it will rotate normally at slow speed.
(2) Rotation speed is switched to intermediate speed after the specified time when PS 303 (ADU gate) detects the leading edge of the paper.
(3) Rotation speed is switched to slow speed after the specified time when PS301 detects the leading edge of the paper.
(4) Repeat Steps (1) to (3) when performing ADU conveyance for multiple sheets of paper.

d. M202 (paper exit) control

(1) Rotates at low speed after the specified time from when the start button goes ON.

(2) When the finisher is installed, the rotation is switched to high-speed rotation after the specified time when PS301 detects the trailing edge of the paper, and this mode is maintained until the end of the copying operation.

(3) When the finisher is not installed, the rotation is switched to high-speed rotation after the specified time when PS301 detects the trailing edge of the paper and low-speed rotation after the specified time when PS302 detects the trailing edge of the paper, and back to high-speed after the specified time from when PS305 detects the trailing edge of the paper.

As a result of the above operations, paper conveyed from the fixing section is drawn into the reversal paper exit section, and the paper reversed by M201 is exited.

2. Signals

a. Input signals

(1) PS27 (PS27 → CB)
Detection signal of PS state.
The [L] signal indicates that PS27 goes ON and paper is being exited.

(2) PS301 (PS301 → CB)
Paper detection signal at the reversal point.
[L]: No paper
[H]: With paper

(3) PS302 (PS302 → CB)
Paper detection signal at forward rotation point.
[L]: No paper
[H]: With paper

(4) PS303 (PS303 → CB)
Paper detection signal between the reversal paper exit section and the ADU.
[L] is indicated when paper is detected.

(5) PS304 (PS304 → CB)
Jam detection signal in the reversal paper exit section.
A jam is judged when this signal is ON for over the specified time.

(6) PS305 (PS305 → CB)
Paper exit detection signal of the reversal paper exit section.
The [L] signal indicates that PS305 goes ON and paper is being exited.

b. Output signals

(1) M201 CLK (CB → EPF DB)
Rotational speed control reference clock signal of M201

(2) M201 F/R (CB → EPF DB)
Rotating direction control signal of M201
[L]: Forward rotation
[H]: Reverse rotation

(3) M201 CONT (CB → EPF DB)
ON/OFF control signal of M201
[L]: M201 ON
[H]: M201 OFF

(4) M201 ENA (CB → EPF DB)
Energized signal of M201
[L]: Energized signal OFF (during motor stop)
[H]: Energized signal ON (during motor rotation)

(5) M202 CLK (CB → EPF DB)
Rotational speed control reference clock signal of M202

(6) M202 F/R (CB → EPF DB)
Rotating direction control signal of M202
[L]: Forward rotation
[H]: Reverse rotation

(7) M202 CONT (CB → EPF DB)
ON/OFF control signal of M202
[L]: M202 ON
[H]: M202 OFF

(8) M202 ENA (CB → EPF DB)
Energized signal of M202
[L]: Energized signal OFF (during motor stop)
[H]: Energized signal ON (during motor rotation)

(9) M201 DRIVE A, $\bar{A}$ (EPF DB → M201)
Signal for A phase drive of M201

(10) M201 DRIVE B, $\bar{B}$ (EPF DB → M201)
Signal for B phase drive of M201

(11) M202 DRIVE A, $\bar{A}$ (EPF DB → M202)
Signal for A phase drive of M202

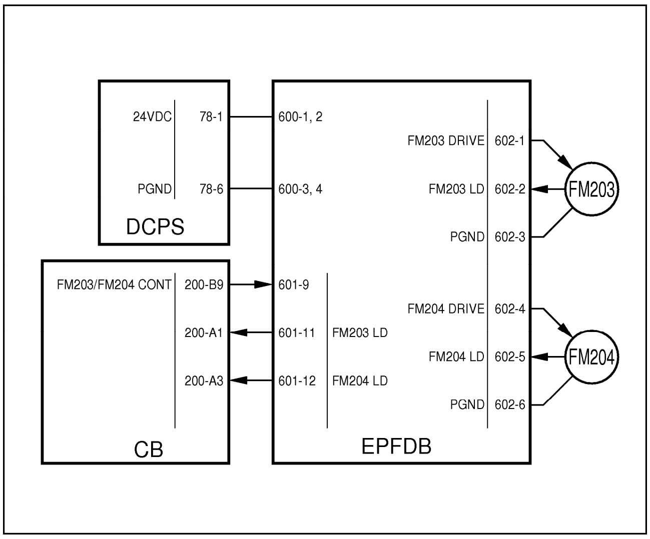
(12) M202 DRIVE B, $\bar{B}$ (EPF DB → M202)
Signal for B phase drive of M202

(13) SD160 DRIVE (EPF DB → SD160)
ON/OFF drive signal of SD160
[L]: SD160 ON
[H]: SD160 OFF

(14) SD160 CONT (CB → EPF DB)
ON/OFF control signal of SD160
[L]: SD160 ON
[H]: SD160 OFF

(15) SD153 DRIVE (CB → SD153)
ON/OFF drive signal of SD153
[L]: SD153 ON
[H]: SD153 OFF

[5] Reversal paper exit cooling fan control


24VDC
78-1
PGND
78-6
DCPS
600-1, 2
600-3, 4
FM203 DRIVE
602-1
FM203 LD
602-2
PGND
602-3
FM203
FM203/FM204 CONT
200-B9
601-9
200-A1
601-11
FM203 LD
200-A3
601-12
FM204 LD
FM204 DRIVE
602-4
FM204 LD
602-5
PGND
602-6
FM204
CB
EPFDB

FM203 (paper exit fan 1) and FM204 (paper exit fan 2) are installed to prevent paper from curling.
FM203 and FM204 are controlled by the CB (control board).

1. Operation

During idling : OFF
During a copy operation : ON

2. Signals

a. Input signals

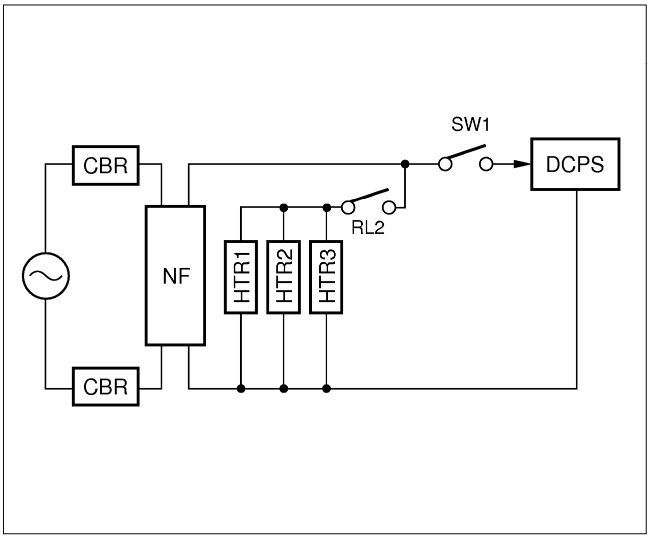
(1) FM203 LD (FM203 → EPF DB → CB)
[L] is output when FM203 reaches the specified speed.
(2) FM204 LD (FM204 → EPF DB → CB)
[L] is output when FM204 reaches the specified speed.

b. Output signals

(1) FM203/FM204 CONT (CB → EPF DB)
ON/OFF control signal of FM203/FM204
[L]: FM203/FM204 ON
[H]: FM203/FM204 OFF
(2) FM203 DRIVE (EPF DB → FM203)
ON/OFF drive signal of FM203
[L]: FM203 ON
[H]: FM203 OFF
(3) FM204 DRIVE (EPF DB → FM204)
ON/OFF drive signal of FM204
[L]: FM204 ON
[H]: FM204 OFF

OTHER KINDS OF CONTROL

[1] Parts Through Which Current Flows When the Main Switch is Turned OFF


CBR
CBR
NF
HTR1
HTR2
HTR3
SW1
RL2
DCPS

1. Operation

Current flows through the following parts if the power cord is plugged into the power outlet, regardless of whether or not SW1 (main) is ON or OFF.

a. CBR (breaker)

If an internal part short circuits, causing a current of more than 15 A to flow, the breaker goes OFF, cutting off the power to the machine.

b. NF (noise filter)

The noise filter is used to reduce noise entering the machine via the power line, and also external leakage of noise generated in the machine.

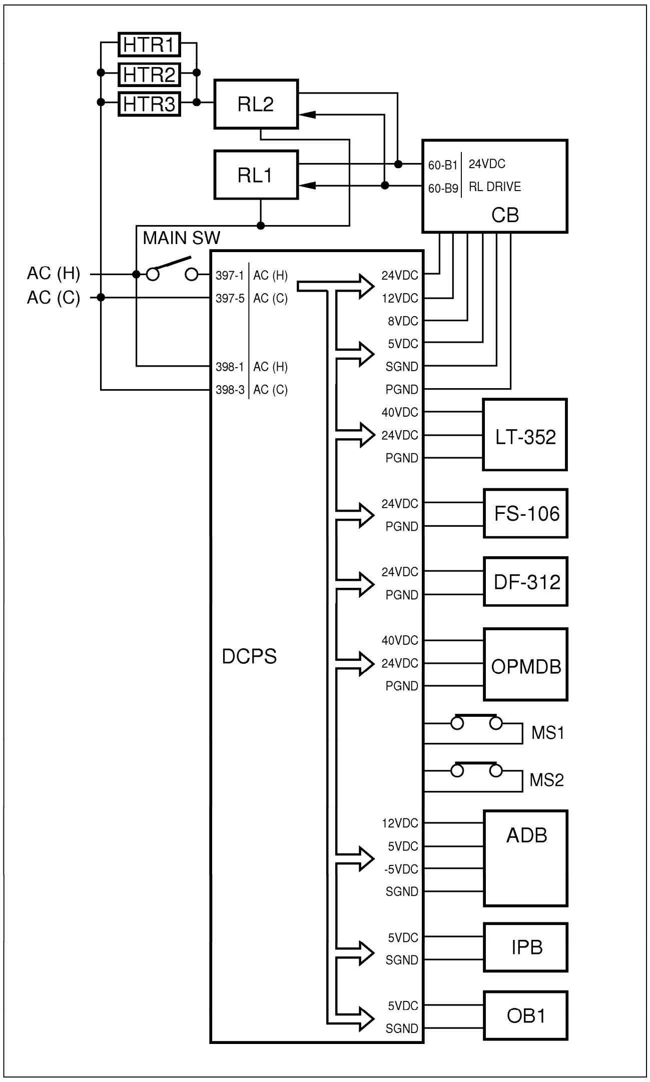
c. Internal heaters

For dehumidifying the inside of the machine (These heaters are ON only when the machine is switched OFF.)

d. KRDS

A machine fitted with the KRDS is applied power regardless of whether the main switch is ON or OFF.

[2] Parts That Operate When the Main Switch is Turned ON


HTR1
HTR2
HTR3
RL2
RL1
MAIN SW
AC (H)
AC (C)
397-1 AC (H)
397-5 AC (C)
398-1 AC (H)
398-3 AC (C)
DCPS
60-B1 24VDC
60-B9 RL DRIVE
CB
24VDC
12VDC
8VDC
5VDC
SGND
PGND
40VDC
24VDC
PGND
LT-352
24VDC
PGND
FS-106
24VDC
PGND
DF-312
40VDC
24VDC
PGND
OPMDB
MS1
MS2
12VDC
5VDC
-5VDC
SGND
ADB
5VDC
SGND
IPB
5VDC
SGND
OB1

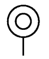
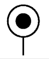
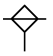
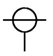
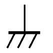
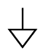
1. Operation

a. Power supply

When SW1 (main) is turned ON, the AC supply voltage is applied to the DCPS (DC power supply unit). As a result, the DCPS supplies DC voltage to the CB (control board), OPMDB (optics drive motor driver board), ADB (AD converter board), IPB (image processing board), FS-106, LT-352 and DF-312. The CB starts control inside the machine, and also starts the following operations.

* RL1 (main relay) and RL2 (sub-relay) ON
* Initial operation of OB (operation board)
* Fixing unit warmup
* Low speed rotation of each fan

DC output voltages and corresponding symbols

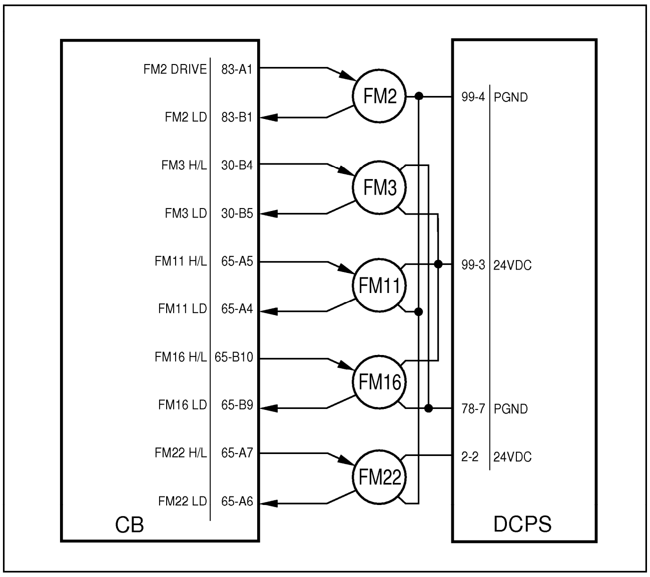
Output	Symbol
40VDC (1)	
40VDC (2)	
24VDC (1)	
24VDC (2)	
12VDC	
5VDC	
SGND	
PGND	

2. Signal

a. Output signal

(1) RL DRIVE (CB→RL1, RL2)
Signal which controls RL1 and RL2.
If an abnormality occurs in the main body, this signal becomes [H], causing RL1 to go OFF.
At the same time, this signal switches ON/OFF for the power applied to the internal heater via RL2.
[L]: (main SW ON)
RL2 OFF (Internal heater OFF)
[H]: (main SW OFF)
RL2 ON (Internal heater ON)

[3] Cooling Fan Control


FM2 DRIVE
83-A1
FM2 LD
83-B1
FM3 H/L
30-B4
FM3 LD
30-B5
FM11 H/L
65-A5
FM11 LD
65-A4
FM16 H/L
65-B10
FM16 LD
65-B9
FM22 H/L
65-A7
FM22 LD
65-A6
CB
FM2
FM3
FM11
FM16
FM22
99-4
PGND
99-3
24VDC
78-7
PGND
2-2
24VDC
DCPS

The CB (control board) drives FM11 (polygon cooling), FM22 (E-RDH cooling), FM16 (main body cooling), FM3 (DCPS cooling) and FM2 (optics cooling).

1. Operation

A 24 V DC motor is used for each cooling fan.

a. Operation of FM2
ON only while L1 is lit at DF mode

b. Operation of FM3
During idling: Low speed rotation
During a copy operation: High speed rotation

c. Operation of FM11
During idling: High speed rotation
During a copy operation: High speed rotation

d. Operation of FM16
During idling: Low speed rotation
During a copy operation: High speed rotation

e. Operation of FM22
During idling: Low speed rotation
During a copy operation: High speed rotation

2. Signals

a. Input signals

(1) FM2 LD (FM2→CB)
This signal becomes [L] when FM2 reaches the specified speed.

(2) FM3 LD (FM3→CB)
This signal becomes [L] when FM3 reaches the specified speed.

(3) FM11 LD (FM11→CB)
This signal becomes [L] when FM11 reaches the specified speed.

(4) FM16 LD (FM16→CB)
This signal becomes [L] when FM16 reaches the specified speed.

(5) FM22 LD (FM22→CB)
This signal becomes [L] when FM22 reaches the specified speed.

b. Output signals

(1) FM2 DRIVE (CB→FM2)
Drive control signal for FM2
[L]: FM2 ON
[H]: FM2 OFF

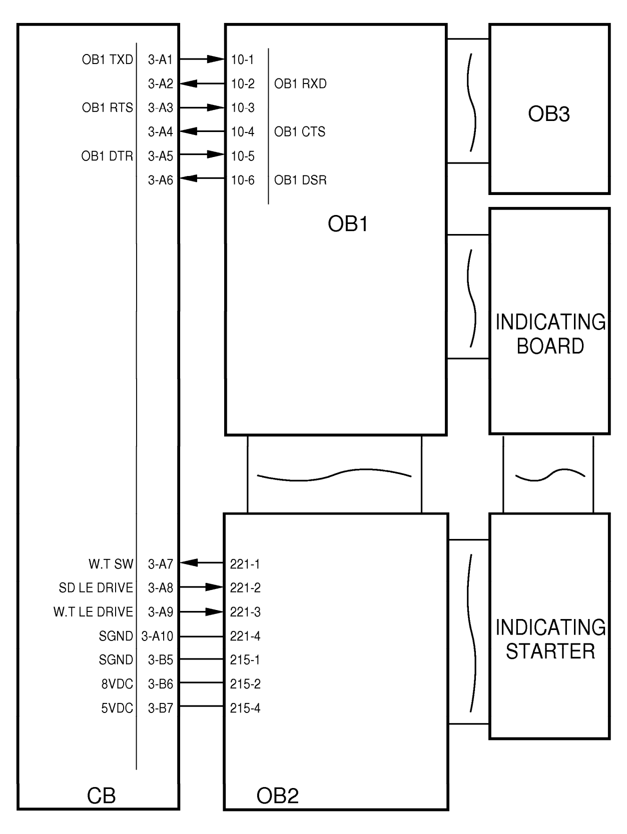
(2) FM3 H/L (CB→FM3)
Rotational drive signal for FM3
[L]: Low speed drive
[H]: High speed drive

(3) FM11 H/L (CB→FM11)
Rotational drive signal for FM11
[L]: Low speed drive
[H]: High speed drive

(4) FM16 H/L (CB→FM16)
Rotational drive signal for FM16
[L]: Low speed drive
[H]: High speed drive

(5) FM22 H/L (CB→FM22)
Rotational drive signal for FM22
[L]: Low speed drive
[H]: High speed drive

[4] Operation Panel Control


OB1 TXD
3-A1
3-A2
OB1 RTS
3-A3
3-A4
OB1 DTR
3-A5
3-A6
10-1
10-2
OB1 RXD
10-3
10-4
OB1 CTS
10-5
10-6
OB1 DSR
OB1
OB3
INDICATING BOARD
W.T SW
3-A7
SD LE DRIVE
3-A8
W.T LE DRIVE
3-A9
SGND
3-A10
SGND
3-B5
8VDC
3-B6
5VDC
3-B7
221-1
221-2
221-3
221-4
215-1
215-2
215-4
INDICATING STARTER
CB
OB2

The operation panel consists of OB1 (operation board 1), OB2 (operation board 2) and the INDICATING BOARD. On the INDICATING BOARD is mounted an LCD. The LCD has a backlight which is powered by the INDICATING STARTER (indication lamp), and touch switches which are linked to the displayed contents.
Control of the operation panel is carried out by OB1 based on serial data output from CB (control board).

1. Operation

a. LED ON operation

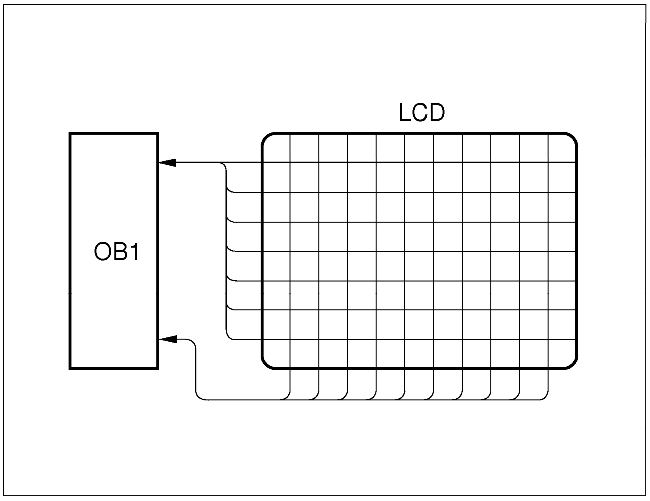
The LED and 7-segment LED on OB1 are turned ON and OFF by several ICs (shift registration/latch driver).
Each IC is turned ON and OFF according to the serial data from the CB.

b. LCD control

(1) LCD display operation
The LCD is driven by the 4-bit parallel data from OB1.

(2) Backlight ON operation
The LCD has a backlight (cold cathode tube) to facilitate viewing. The backlight is driven by the INDICATING STARTER, and controlled by OB1 via OB2.

(3) Touch switch control
The LCD has touch switches, enabling you to directly select items indicated by the display. These touch switches are controlled by OB1.



2. Signals

a. Input signals

(1) OB1 RXD (OB1→ CB)
32-bit serial data which informs CB of the operation status of OB1.

(2) OB1 CTS (OB1 → CB)
Signal which indicates that data is being sent from OB1 to CB.
When this signal is [H], CB stops sending the OB1 TXD signal.

(3) OB1 DSR (OB1 → CB)
Received verification signal which is returned each time one byte of data has been received, when OB1 is receiving data from CB.

(4) W.T. switch (OB2 → CB)
Signal which indicates the operation status of the weekly timer

b. Output signals

(1) OB1 TXD (CB → OB1)
32-bit serial data which informs OB1 of the operation status of the machine that is known to CB.

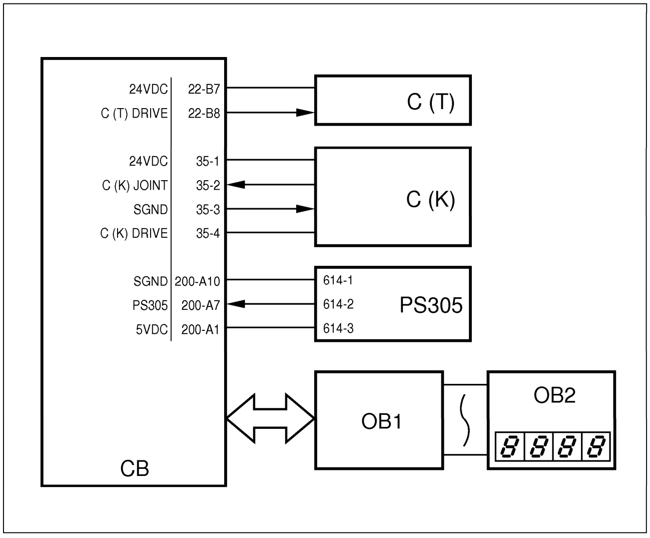
(2) OB1 RTS (CB → OB1)
Signal which indicates that data is being sent from CB to OB1.
When this signal is [H], OB1 stops sending the OB1 RXD signal.

(3) OB1 DTR (CB → OB1)
Received verification signal which is returned each time one byte of data has been received, when CB is receiving data from OB1.

(4) SD LE DRIVE (CB → OB2)
LCD backlight ON/OFF control signal

(5) W.T. LE DRIVE (CB → OB2)
Weekly timer ON/OFF control signal

[5] Counter Control


24VDC
C (T) DRIVE
22-B7
22-B8
C (T)
24VDC
C (K) JOINT
SGND
C (K) DRIVE
35-1
35-2
35-3
35-4
C (K)
SGND
PS305
5VDC
200-A10
200-A7
200-A1
614-1
614-2
614-3
PS305
OB1
OB2
8888
CB

This machine has the following counters.
C(T) (total counter)
C(K) (key counter)
These counters are controlled by the CB (control board).
PS305 (reversal paper exit) is a signal related to this control.

1. Operation

This machine counts copies by means of two software counters.

(1) Paper feed counter
The count increases by 1 each time the 1st paper feed goes ON.

(2) Paper exit counter
The count increases by 1 each time PS305 goes ON to OFF.

<Operation of each counter>

a . Copy quantity display counter on the OB

Normal	Paper jam
Indicates the count on the paper feed counter.	Indicates the count on the paper exit counter.

b. C(K)
This counter counts in synchronism with the paper exit counter.

c. C(T)
This counter counts in synchronism with the paper exit counter.

2. Signals

a. Input signals

(1) C(K) JOINT (C(K)→CB)
This signal informs the CB that the count on C(K) has increased.

(2) PS305 (PS305→CB)
PS305 state signal.
When this signal is [L], PS305 goes ON, indicating that the paper has been exited.

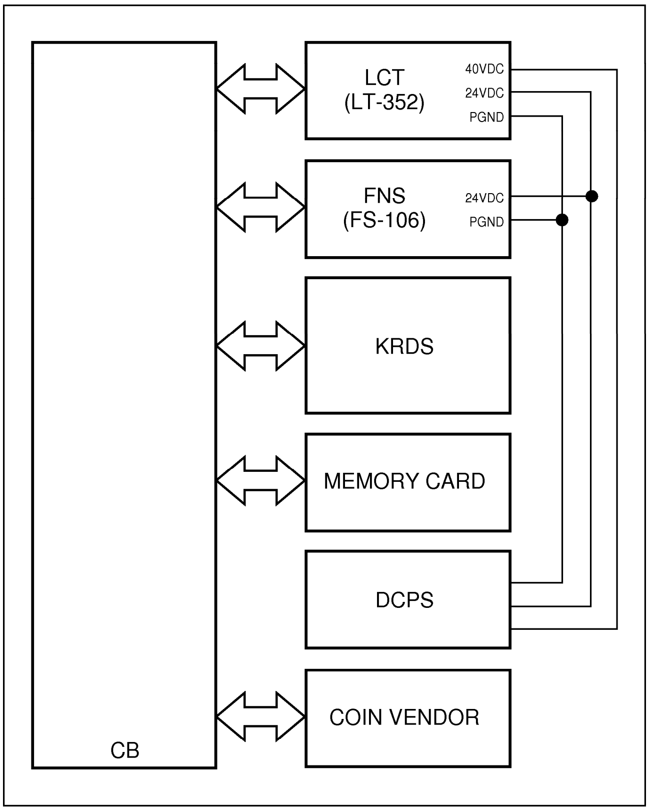
b. Output signals

(1) C(T) DRIVE (CB→C(T))
C(T) drive signal
When this signal changes from [L] to [H], the count of C(T) increases by 1.

(2) C(K) DRIVE (CB→C(K))
C(K) drive signal
When this signal changes from [L] to [H], the count of C(K) increases by 1.

[6] Option Control

In this machine, the LCT, FNS, KRDS and memory card options are controlled by the CB (control board).



1. Operation

The CB directly controls the KRDS and the memory card. The FNS contains a CB. Data is exchanged between FNS CB and the main body CB. (For details of the operation of each option, refer to the Option section of this manual.) The DCPS (DC power supply unit) supplies power to the LCT, FNS and KRDS. Power is supplied to the memory card via the CB.

<Operation/output timing of coin vender signal>

CN No.	Pin No.	Signal name	Description	Output timing	Kind of signal
35	1	DC24V	Key counter power source	Always	24 V, 300 mA
	2	C(K) SIG	Key counter connection recognition	—	—
	3	C(K) GDN	Signal ground	—	—
	4	C(K) DRIVE	Key counter signal count up	100 ms L signal that is output after the copy is exited.	
	5	P.GDN	Power ground	—	—
36	1	Vender Copy	“Copy in progress” signal	Output from when the Start button is pressed until the copy is exited.	Open collector 5 V, 200 mA
	2	Vender FEED	Paper feed signal	100 ms L signal that is syncronized with the main body tray/DB.	
	3	Paper size 0	Paper size signal	Signal output from when changing a paper size.	
	4	Paper size 1			
	5	Paper size 2			
	6	Paper size 3			
	7	Vender two-sided copy	Two-sided copy select signal	Signal output only when two-sided copy mode is selected.	
	8	CPF SIG 0	CPF mode selection signal	Signal output from when selecting copy, printer, fax mode.	
	9	CPF SIG 1			
	10	P.GND	Power ground	—	—

JAM LIST

Following jam detection is carried out in this machine.

[1] Paper Jam

	Classification	Jam code	Causes		Operation when jam occurs	Method of clearing jam
Main body and LCT	By-pass feed tray	J10-1	When stationary	PS18 (no feed) and PS14 (registration) are OFF during idling but PS30 (by-pass feed) is ON.	If a copy is being made when a jam occurs, copy operation is stopped after completion of exit of the copy.	Remove the original paper from by-pass tray then remove the jammed paper.
		J10-2	When operating	PS14 (registration) or PS30 (by-pass feed) is not turned ON within 4 seconds from ON of SD3 (by-pass feed).		
		J10-4		PS30 (by-pass) is ON at the time of ON of SD3 (by-pass feed).		
	Tray 1	J11-1	When stationary	PS20 (pre try (upper)) is ON during idling.		Open the main body conveyance door and remove the jammed paper and close it. Open the tray and remove the jammed paper and close it.
		J11-2	When operating	PS20 (pre try (upper)) is not turned ON within 400 msec from ON of SD1 (1st paper feed (upper)).		
		J11-3		PS18 (no feed) is not turned ON within 650 msec from ON of SD1 (1st paper feed (upper)).		
		J11-4		PS20 (pre try (upper)) is ON when SD1 (1st paper feed (upper)) goes ON.		
	Tray 2	J12-1	When stationary	PS21 (pre try (lower)) is ON during idling.		
		J12-2	When operating	PS21 (pre try (lower)) is not turned ON within 400 msec from ON of SD2 (1st paper feed (lower)).		
		J12-3		PS18 (no feed) is not turned ON within 820 msec from ON of SD2 (1st paper feed (lower)).		
		J12-4		PS21 (pre try (lower)) is ON when SD2 (1st paper feed (lower)) goes ON.		
	Tray 3	J13-1	When stationary	PS210 (LCT pre try (1000)) is ON during idling.		Open the LCT conveyance door and remove the jammed paper and close it. Open the tray and remove the jammed paper and close it.
		J13-2	When operating	PS210 (LCT pre try (1000)) is not turned ON within 420 msec from ON of SD141 (LCT paper feed (1000)).		
		J13-3		PS144 (LCT conveyance (1000)) is not turned ON within 2 seconds from ON of SD141 (LCT paper feed (1000)).		
		J13-4		PS210 (LCT pre try (1000)) is ON when SD141 (LCT paper feed (1000)) is ON.		
	Tray 4	J14-1	When stationary	PS200 (LCT pre try (1500)) is ON during idling.		
		J14-2	When operating	PS200 (LCT pre try (1500)) is not turned ON within 370 msec from ON of SD140 (LCT paper feed (1500)).		
		J14-3		PS146 (LCT conveyance (1500)) is not turned ON within 2.4 seconds from ON of SD140 (LCT paper feed (1500)).		Open the LCT upper cover and remove the jammed paper and close it. Open the tray and remove the jammed paper and close it.
		J14-4		PS200 (LCT pre try (1500)) is ON when SD140 (LCT paper feed (1500)) is ON.		

	Classification	Jam code	Causes		Operation when jam occurs	Method of clearing jam
LT-352	LTC-352 paper feed jam	J15-1	When stationary	PS802 (LT pre try) is ON during idling.	If a copy is being made when a jam occurs, copy operation is stopped after completion of exit of the copy.	Open the LCT conveyance door and remove the jammed paper and close it. Pull the LCT out and remove the jammed paper.
		J15-2	When operating	PS802 (LT pre try) is not turned ON within 400 msec from ON of MC800 (LT 1st paper feed).		
		J15-3		PS18 (no feed) is not turned ON within 800 msec from ON of PS802 (LT pre tray).		
		J15-4		PS802 (LT pre try) is ON when MC800 (LT 1st paper feed) is ON.		
Main body and LCT	Conveyance jam	J16-0	When stationary	PS14 (register) is ON during idling.	If a copy is being made when a jam occurs, copy operation is stopped after completion of exit of the copy.	Open the front door and remove the jammed paper and close it.
		J17-1	When stationary	PS18 (no feed) or PS19 (optics sync 1) is ON during idling.	If a copy is being made when a jam occurs, copy operation is stopped after completion of exit of the copy.	Open the conveyance door and remove the jammed paper and close it.
		J17-3	When operating	PS19 (optics sync 1) is not turned ON within 560 msec from ON of PS156 (ADU paper exit 3).		
		J17-4		PS19 (optics sync 1) is not turned ON within 430 msec from the start of reconveyance in right lengthwise conveyance in LCT paper feed.		
		J17-5		PS18 (no feed) is not turned ON within 560 msec from the start of reconveyance in right lengthwise conveyance in LCT/ADU reverse side.		
		J17-6		A loop is not completed within 400 msec from ON of PS18 (no feed).		
		J19-0	When operating	PS144 (LCT conveyance (1000)) is not turned ON within 2 sec. from ON of PS147 (LCT prefeed (1000)). PS146 (LCT conveyance (1500)) is not turned ON within 2 sec. from ON of PS145 (LCT prefeed (1500)).		
		J19-1	When stationary	PS144 (LCT conveyance (1000)) or PS146 (LCT conveyance (1500)) is ON during idling.		
		J19-2		PS147 (LCT prefeed (1000)) or PS145 (LCT prefeed (1500)) is ON during idling.		

	Classification	Jam code	Causes		Operation when jam occurs	Method of clearing jam
Main body and LCT	Conveyance jam	J21		TCSB (drum wrapping sensor) is ON.	The main body is stopped immediately.	Open the front door and remove the jammed paper and close it.
		J30		PS14 (registration) is not turned OFF within paper size length + 40 mm from ON of MC3 (2nd paper feed).		
		J31		PS27 (fixing paper exit) is not turned ON within 2000 msec from ON of MC3 (2nd paper feed). PS27 (fixing paper exit) was turned ON within 280 msec from copy start.		Open the paper exit and the front door and remove the jammed paper and close them.
		J32	When stationary	PS27 (fixing paper exit) is ON during idling.		
			When operating	PS27 (fixing paper exit) does not go OFF within 2000 msec after PS27 (fixing paper exit) goes ON.		
		J33-1	When stationary	PS301 (reversal point), PS302 (reversal paper feed point), PS303 (ADU gate), PS304 (ADU paper feed) or PS305 (reversal paper exit) is ON during idling.		Open the main body left plate, remove the jammed paper, then close it.
		J33-2	When operating	PS301 (reversal point) is not turned ON within 800 msec from ON of PS27 (fixing paper exit).		
		J33-3		PS301 (reversal point) is not turned OFF within 2.4 sec. from ON of PS301 (reversal point).		
		J33-4		PS305 (reversal paper exit) is not turned OFF within 1 sec. from ON of PS27 (fixing paper exit) at the straight paper exit. PS305 (reversal paper exit) is not turned OFF within 1 sec. from start of M201's (reversal paper exit) reversing operation at the reversal paper exit.		

	Classification	Jam code	Causes		Operation when jam occurs	Jam clearing method
RADF	DF-312	J61-0	When stationary	MS301 (cover open/close detect) is ON during idling.	RADF is stopped immediately. If there is paper during or after transfer, the main body is stopped after exit of the paper.	Open the RADF and remove the jammed paper and close it. If there is a jammed paper on a vertical conveyance unit in the main body, remove it.
			When operating	MS301 (cover open and close detect) was turned ON during RADF operating.		
		J61-1	When stationary	PS301 (DF open and close detect) is OFF during idling.		
			When operating	PS301 (DF open/close detect) was turned OFF during RADF operation.		
		J62-1		PS306 (original registration) is not turned OFF within a certain period after it has been turned ON.		
		J62-2		PS308 (original conveyance) is not turned ON within a certain period after the pre-feed of the duplex original front side (include the simplex original) has been started.		
		J62-3		PS308 (original conveyance) is not turned ON within a certain period after the pre-feed of the duplex original back side has been started.		
		J62-4		PS308 (original conveyance) is not turned OFF within a certain period after the scanning of the duplex original front side (include the simplex original) has been started.		
		J62-5		PS308 (original conveyance) is not turned OFF within a certain period after the scanning of the duplex original back side has been started.		
		J63-0		PS307 (original paper exit) is not turned ON within a certain period after the scanning of the simplex original has been started.		
		J63-1		PS307 (original paper exit) is not turned ON within a certain period after the scanning of the duplex original back side has been started.		
		J63-2		At the simplex original exiting, PS307 (original paper exit) is not turned OFF within a certain period after it has been turned ON.		
		J63-3		At the duplex original exiting, PS307 (original paper exit) is not turned OFF within a certain period after it has been turned ON.		

	Classification	Jam code	Causes		Operation when jam occurs	Jam clearing method
RADF	DF-312	J63-4	When operating	PS309 (original reversal detect) is not turned ON within a certain period after the scanning of the duplex original front side has been started.	RADF is stopped immediately. If there is paper during or after transfer, the main body is stopped after exit of the paper.	Open the RADF and remove the jammed paper and close it. If there is a jammed paper on a vertical conveyance unit in the main body, remove it.
		J63-5		PS309 (original reversal detect) is not turned ON within a certain period after the reversal paper feed has been started.		
		J63-6		At the start of the duplex original front side scanning, PS309 (original reversal detect) is not turned OFF within a certain period after it has been turned ON.		
		J63-7		At the start of the reversal paper feed, PS309 (original reversal detect) is not turned OFF within a certain period after it has been turned ON.		
		J65-0	When stationary	PS306 (original regist.) is ON during idling.		
		J65-1		PS308 (original conveyance) is ON during idling.		
		J65-2		PS309 (original reversal detect) is ON during idling.		
		J65-3		PS307 (original paper exit) is ON during idling.		

	Classification	Jam code	Causes		Operation when jam occurs	Method of clearing jam
FNS	FS-106	J72-16	When operating	PS4 (FIN entrance passing) is not turned ON within the specific time after PS305 (reversal paper exit) is turned ON.	FNS/main body is stopped immediately.	Remove the jammed paper off the FNS/main body.
		J72-17		PS23 (paper exit 2) is not turned ON within the specific time after PS4 (FIN entrance passing) is turned ON.		
		J72-18		PS5 (stacker conveyance passing) is not turned ON within the specific time after PS4 (FIN entrance passing) is turned ON (in staple mode).		
		J72-19		PS5 (stacker conveyance passing) is not turned OFF within the specific time after it turns ON.		
		J72-20		PS6 (paper exit 1) is not turned ON within the specific time after the paper exit operation is started (in staple mode).		
		J72-21		PS6 (paper exit 1) is not turned OFF within the specific time after it turns ON after the paper exit operation is started (in staple mode).		
		J72-23		PS4 (FIN entrance passing) is not turned OFF within the specific time after it turns ON (in sub-tray paper exit).		
		J72-27		PS20 (stacker paper 0) is OFF when the staple is started.		
		J72-29		PS23 (paper exit 2) is not turned OFF within the specific time after it turns ON (in offset mode).		
		J72-30		PS6 (Reversal paper exit) is not turned OFF within the specific time after it turns ON (in staple mode).		
		J72-31		PS4 (FIN entrance passing) is not turned ON within the specific time after PS305 (reversal paper exit) is turned ON (in multiple paper exit mode).		
		J72-81		PS17 (stapler F HP) is not turned ON within the specific time from M10 (stapler F) goes ON.		
		J72-82		PS15 (stapler R HP) is not turned ON within the specific time from M9 (stapler R) goes ON.		
		J72-83		PS15 (stapler R HP) and PS17 (stapler F HP) are not turned ON within the specific time from M9 (stapler R) and M10 (stapler F) go ON.		

△1

	Classifica-tion	Jam code	Causes		Operation when jam occurs	Method of clearing jam
FNS	FS-108BM	J72-16	When operating	PS4(FIN entrance passage) is not turned ON within the specific time after the main body paper exit PS is turned ON.	FNS/main body is stopped immediately.	Remove the jammed paper off the FNS/main body.
		J72-17		PS10(paper exit 2) is not turned ON within the specific time after PS4(FIN entrance passage) is turned ON.		
		J72-18		PS5(stacker conveyance passage) is not turned ON within the specific time after PS4(FIN entrance passage) is turned ON (in staple mode).		
		J72-19		PS5 (satcker conveyance passing) is not turned OFF within the specific time after it turns ON.		
		J72-20		PS6(paper exit 1) is not turned ON within the specific time after the paper exit operation is started (in staple mode).		
		J72-21		PS6(paper exit 1) is not turned OFF within the specific time after it turns ON after the paper exit operation is started (in staple mode).		
		J72-22		PS1(subtray paper exit) is not turned ON within the specific time after PS4(FIN entrance passage) is turned ON (in subtray paper exit).		
		J72-23		PS1(subtray paper exit) is not turned OFF within the specific time after it turns ON (in subtray paper exit).		
		J72-24		PS28(folding passage/1) is not turned ON within the specific time after the staple is completed.		
		J72-25		PS25(folding paper exit) is not turned ON within the specific time after folding is completed.		
		J72-26		PS25(folding paper exit) is not turned OFF within the specific time after it turns ON.		
		J72-27		PS20(stacker no paper detection) is OFF when the staple is started.		
		J72-28		PS5(stacker conveyance passage) is not turned OFF within the specific time after it turns ON.		
		J72-29		PS10(paper exit 2) is not turned OFF within the specific time after it turns ON.		
		J72-30		PS6(paper exit 1) is not turned OFF within the specific time after it turns ON.		

△1

	Classification	Jam code	Causes		Operation when jam occurs	Method of clearing jam
FNS	PI-108	J72-35	When operating	PS201(sheet passage) is not turned ON within the specific time after MC201(paper feed) is turned ON.	FNS/main body is stopped immediately.	Remove the jammed paper off the FNS/main body.
		J72-36		PS5(stacker conveyance passage) is not turned ON within the specific time after PS201(sheet passage) is turned ON.		
		J72-37		PS10(paper exit 2) is not turned ON within the specific time after PS201(sheet passage) is turned ON.		
	FS-108BM	J72-81		PS30(clincher HP/R) and PS31 (stapler HP/R) are not turned ON within the specific time after M21 (clincher R) and M22(stapler R) go ON.		
		J72-82		PS33(clincher HP/F) and PS34 (stapler HP/F) are not turned ON within the specific time after M23 (clincher F) and M24(stapler F) go ON.		
		J72-83		"PS30(clincher HP/R), PS33 (clincher HP/F), PS31(stapler HP/R) and PS34(stapler HP/F) are not turned ON within the specific time after M21(clincher R), M23(clincher/F), M22(stapler R) and M24(stapler/F) go ON. "		
		J72-90		FNS does not operate within the specific time after it receives start-operation signal from the main body.		
	FS-108BM	J73-1		PS6(paper exit 1) is ON during idling.		
		J73-2		PS5(stacker conveyance passage) is ON during idling.		
		J73-3		PS26(folding passage/2) is ON during idling.		
		J73-4		PS13(entrance paper detection) is ON during idling.		
		J73-5		PS4(FIN entrance passage) is ON during idling.		
		J73-6		PS10(paper exit 2) is ON during idling.		
		J73-7		PS1(subtray paper exit) is ON during idling.		
		J73-9		PS28(folding passage/1) is ON during idling.		
		J73-10		PS25(folding paper exit) is ON during idling.		
	PI-108	J73-14		PS201(sheet passage) is ON during idling.		

	Classification	Jam code	Causes		Operation when jam occurs	Method of clearing jam
FNS	FS-106	J73-01	When stationary	PS6 (paper exit 1) is ON during idling.	FNS/main body is stopped immediately.	Remove the jammed paper off the FNS/main body.
		J73-02		PS5 (stacker conveyance entrance) is ON during idling.		
		J73-05		PS4 (FIN entrance passing) is ON during idling.		
		J73-06		PS23 (paper exit 2) is ON during idling.		
ADU	ADU paper feed jam	J92	When operating	PS152 (ADU paper feed) is not turned ON within 2000 msec from ON of PS27 (fixing paper exit).	The main body is stopped immediately.	Open ADU/main body front door/lengthwise conveyance door and remove jammed paper, and close it.
		J93	When stationary	During idling, either of PS152 (ADU paper feed), PS153 (ADU reversal) or PS303 (ADU gate) is ON.		
			When operating	PS303 (ADU gate) is turned ON within 280 msec from the copy start.		
				CL151 (ADU paper feed) is not turned OFF within 1500 msec from ON of PS152 (ADU paper feed).		
	ADU paper exit jam	J94		PS154 (ADU paper exit 1) is not turned ON within 640 msec from OFF of PS152 (ADU paper feed).		
				PS156 (ADU paper exit 3) is not turned ON within 900 msec from ON of PS154 (ADU paper exit 1).		
		J95	When stationary	During idling, either of PS154 (ADU paper exit 1), PS155 (ADU paper exit 2), PS156 (ADU paper exit 3) or PS151 (ADU no paper) is ON.		
			When operating	PS303 (ADU gate) is turned ON within 280 msec from copy start.		
		J96		PS153 (ADU reversal) is OFF after 140 msec from OFF of PS152 (ADU paper feed).		

[2] Abnormalities

	Classification	Warning code	Causes	Operation in case of warning occurrence	Releasing method	Estimated abnormal parts
Main body	Paper feed lifting abnormality	F18-1 (upper)	PS16 (upper limit (upper)) is not turned ON within 7.5 seconds from ON of M17 (upper tray).	The main body is stopped immediately if it is in process of copying, and main relay is turned OFF.	OFF of the SW1 (main) → ON *Limit is released by operating in accordance with the message.	CB (control board) M17 (upper tray) PS16 (upper limit (upper))
		F18-2 (lower)	PS17 (upper limit (lower)) is not turned ON within 7.5 seconds from ON of M18 (lower tray).			CB (control board) M18 (lower tray) PS17 (upper limit (lower))
		F18-3 (10)	PS143 (LCT upper limit (1000)) is not turned ON within 7.5 seconds from ON of M142 (LCT tray (1000)).			CB (control board) M142 (LCT tray (1000)) PS143 (LCT upper limit (1000))
		F18-4 (15)	PS142 (LCT upper limit (1500)) is not turned ON within 7.5 seconds from ON of M141 (LCT tray (1500)).			CB (Control board) M141 (LCT tray (1500)) PS142 (LCT upper limit (1500))
		F18-5	PS801 (LCT upper limit) is not turned ON within 30 sec. from ON of M801 (LT UP/DOWN).			M801 (LT UP/DOWN) LTDB (LT drive board)
	Wire cleaning abnormality	F22-1	Operation for charging corona wire cleaning was tried, but it was locked. Or, it was locked on the half way.	Main relay is turned OFF and all keys are not accepted.	OFF of the SW1 (main) → ON	Charging corona unit CB (control board)
		F22-2	Operation for transfer and separation corona wire cleaning was tried, but it was locked. Or, it was locked on the half way.			Transfer/separation corona unit CB (control board)
	High voltage power source abnormality	F28-1	When charging output is judged to be abnormal discharge.	The main body is stopped immediately if it is in process of copying, main relay is turned OFF, and all keys are not accepted.	OFF of the SW1 (main) → ON Remove jammed paper, if any.	Charging corona unit HV1 (high voltage unit 1)
		F28-2	When transfer output is judged to be abnormal discharge.			Transfer corona unit HV2 (high voltage unit 2)
		F28-3	When separation output is judged to be abnormal discharge.			Separation corona unit HV2 (high voltage unit 2)
	Fixing high temperature abnormality	F34-1	Fixing temperature is exceeding about 220˚C. (Fixing high temperature abnormality detection software operates.)	Main relay is turned OFF, and all keys are not accepted.	Set "0" to the address 3-1, 3-2, 3-3, or 3-4 in DIPSW.	TH1 (fixing temperature sensor 1) TH2 (fixing temperature sensor 2)
		F34-2	Fixing temperature is exceeding about 220˚C. (Fixing high temperature abnormality detection software operates.)			
	Fixing low temperature abnormality	F35-1	Warm-up is not completed within a certain period (approx. 5 minutes) from the start of the warm-up. (Fixing low temperature trouble detection software operates.)			TH1 (fixing temperature sensor 1) TH2 (fixing temperature sensor 2) L2 (fixing heater lamp 1) L3 (fixing heater lamp 2) L4 (fixing heater lamp 3) Fixing unit insertion failure
		F35-2	After completion of warm-up, fixing temperature is lower than a prescribed temperature. (Fixing low temperature trouble detection software operates.)			

	Classification	Warning code	Causes	Operation in case of warning occurrence	Releasing method	Estimated abnormal parts
Main body	Snapping of fixing sensor	F36-1	A prescribed temperature is not reached within 120 seconds from the start of warm-up. (Fixing sensor snapping detection software operates.)	Main relay is turned OFF, and all keys are not accepted.	Set "0" to the address 3-1, 3-2, 3-3, or 3-4 in DIPSW.	CB (control board) TH1 (fixing temperature sensor 1) TH2 (fixing temperature sensor 2) TH3 (fixing temperature sensor 3) Fixing unit insertion failure Lever set failure
	△2	F36-2	A prescribed temperature is not reached within 100 seconds from the start of warm-up. (Fixing sensor snapping detection circuit operates.)			
	Fixing lower roller temperature abnormality	F37-1	The fixing lower roller temperature exceeds 200°C. (Fixing high temperature abnormality detection software operates.)			
	Optics returning abnormality	E41-1	Each PS in optics is not turned ON within 5 seconds from the start of optics returning in initial search. (PS3 (shading position), PS9 (ADF home position), PS28 (scan EE), PS29 (ADF brake))	The main body is stopped immediately, main relay is turned OFF, and all keys are not accepted.	OFF of the SW1 (main) → ON Remove jammed paper, if any.	OPMDB (optics motor drive board) PS3 (shading position) PS9 (ADF home position) PS28 (scan EE) PS29 (ADF brake) Exposure unit Carry out 36 mode (optics stop position automatic adjustment).
		E41-2	PS9 (ADF home position) is not turned OFF and PS29 (ADF brake) is not turned ON at where the exposure unit stops in optics returning.			OPMDB (optics motor drive board) CB (control board) Carry out 36 mode (optical brake position auto adjustment, optical brake auto adjustment).
		E41-3	Optics return signal is not turned ON within 120 msec from start of brake when optics returning.			
	Glass open abnormality	E41-4	PS8 (glass detection) is OFF.		Set the platen glass, and OFF of the SW 1 (main) → ON.	PS8 (glass detection) Platen glass mounting failure
	Optics returning abnormality (coordination)	E41-5	Optics stop position can not be adjusted.		OFF of the SW1 (main) → ON	OPMDB (optics motor drive board) Exposure unit Carry out 36 mode (optics stop position automatic adjustment). PS3 (shading position) PS9 (ADF home position) PS28 (scan EE) PS29 (ADF brake)

	Classification	Warning code	Causes	Operation in case of warning occurrence	Releasing method	Estimated abnormal parts
Main body	Image processing abnormality	E46-0	An error was detected during APC.	The main body stops immediately while copying is in progress. The main relay is turned off and all keys are not accepted.	OFF of the SW1 (main) → ON Remove any paper jams.	IPB (image processing board) LDB1 (laser driver board 1) LDB2 (laser driver board 2)
		E46-2	FIFO error in E-RDH (Electronic DRH Processing Board)			E-RDH (electronic RDH processing board)
		E46-3	FIFO error in E-RDH (Electronic DRH Processing Board) (during compression)			
		E46-5	LDB1 (laser diver board 1), LDB2 (laser driver board 2) and INDXSB (index sensor board) are not connected.			
		E46-6	Expansion error 1 in E-RDH (Electronic RDH Processing Board)			
		E46-7	Expansion error 2 in E-RDH (Electronic RDH Processing Board)			
		E46-8	INDXSB (Index Sensor Board) error When no change is seen in INDXSB output during APC execution.			LDB1 (laser driver board 1) LDB2 (laser driver board 2) INDXSB (index sensor board) IPB (image processing board)
		E46-9	Compression IC error DTACK is not returned from the compression IC in E-RDH (Electronic RDH Processing Board).			E-RDH (electronic RDH processing board)
		E46-10	FIFO self-check error.			
		E46-11	Insufficient parameter setting time error			
		E46-12	Incomplete compression error			
		E46-15	VV check error 1			IPB (image processing board)
		E46-16	VV check error 2			
		E46-17	Filter count calculation error			
		E46-20	Page memory allocation error			
		E46-24	Light amount becomes low in L1.	Not displayed on the operation screen, displayed only the data collection function or KRDS. Copy operation can be carried out even in case of warning occurrence.	Clean L1 (exposure lamp), the reflected mirror, white reference plate, mirror and lense.	L1 (exposure lamp) INVB (inverter board) ADB (AD converter board) IPB (image processing board) CB (control board)
		E46-25	Light amount is low in L1.	The main body stops immediately. The main relay is turned off and all keys are not accepted.	OFF of the SW1 (main) → ON	

	Classification	Warning code	Causes	Operation in case of warning occurrence	Releasing method	Estimated abnormal parts
△2 Main body	Image processing CPU error	E47-1	AGC conclusion is not returned from the image processing .	Only during idling, it occurs. M/C stops instantaneously.	OFF of the SW1 (main) → ON	IPB (image processing board) M40 (laser correction) CB (control board)
		E47-2	A "scan OK" signal is not returned from the CPU in the IPB (image processing board).	Occurs only during scanning. M/C stops instantaneously.		
		E47-3	The print OK signal is not returned from the CPU in the IPB (image processing board).	Occurs only during copying. M/C stops instantaneously.		
		E47-4	The page memory acquisition OK signal is not returned from the CPU in the IPB (image processing board).	Occurs only during copying. M/C stops instantaneously.		
		E47-5	"Sub-scanning beam correction completed" signal is not returned from the CPU in the IPB (image processing board).	Occurs only during idling. M/C stops instantaneously.		
		E47-6	"Printer job OK" signal is not returned from the CPU in the IPB (image processing board). Or "processing OK" signal is not turned from the E-RDH (electronic RDH processing board).	Occurs only during copying. M/C stop instantaneously.		IPB (image processing board) E-RDH (electronic RDH processing board) M40 (laser correction) CB (control board)

MC-Service

	Classification	Warning code	Causes	Operation in case of warning occurrence	Releasing method	Estimated abnormal parts
Main body	Motor speed abnormality	F51-1	Speed abnormality in M35 (agitator screw)	The main body is stopped immediately. The main relay is turned OFF and all keys are not accepted.	OFF of the SW1 (main) → ON	M35 (developing screw) CB (control board)
		F51-2	Speed abnormality in M1 (main)			M1 (main) CB (control board)
		F51-3	Speed abnormality in M10 (toner supply)			M10 (toner supply) CB (control board)
		F51-4	Speed abnormality in M3 (developing drive)			M3 (developing drive) CB (control board)
		F51-5	Speed abnormality in M4 (drum)			M4 (drum) CB (control board)
		F51-6	Speed abnormality in M5 (polygon)			M5 (polygon) PMDB (polygon drive board) CB (control board)
		F51-7	Speed abnormality in M151 (ADU paper feed)	During copying, after all papers fed are exited, the main body is stopped, and all keys are not accepted.	OFF of the SW1 (main) → ON	CB (control board) M151 (ADU paper feed)
		F51-9	Speed abnormality in M12 (optics drive)	The main body is stopped immediately only during shading correction operation, and all keys are not accepted.	OFF of the SW1 (main) → ON	M12 (optics) OPMDB (Optics motor drive board)
	Fan lock abnormality	F52-1	Locking abnormality in FM16 (main body cooling fan)	After set JOBs are completed, the left-mentioned warnings are displayed.		FM16 (main body cooling fan)
		F52-2	Locking abnormality in FM14 (conveyance suction fan)			FM14 (conveyance suction fan)
		F52-3	Locking abnormality in FM30 (developing suction fan)			FM30 (developing suction fan)
		F52-4	Locking abnormality in FM2 (optics cooling fan)			FM2 (optics cooling fan)
		F52-5	Locking abnormality in FM22 (E-RDH cooling fan)			FM22 (E-RDH cooling fan)
		F52-6	Locking abnormality in FM11 (polygon cooling fan)			FM11 (polygon cooling fan)
		F52-8	Locking abnormality in FM153 (ADU cooling fan 1)		OFF of the SW1 (main) → ON *Limit is released by operating in accordance with the message.	FM153 (ADU cooling fan 1)
		F52-9	Locking abnormality in FM154 (ADU cooling fan 2)			FM154 (ADU cooling fan 2)
		F52-10	Locking abnormality in FM3 (DCPS cooling fan)		OFF of the SW1 (main) → ON	FM3 (DCPS cooling fan)
		F52-11	FM203 (paper exit fan 1) lock abnormality			FM203 (paper exit fan 1)
		F52-12	FM204 (paper exit fan 2) lock abnormality			FM204 (paper exit fan 2)
RADF	RADF abnormality	E60-3	Communication error	The main body and the RADF are stopped immediately. The main relay is turned OFF and all keys are not accepted.	OFF of the SW1 (main) → ON If there is a jamming paper, remove it.	CB (control board) DF CB (RADF control board)
		E67-1	PS306 (original registration), PS308 (original conveyance), and PS309 (original reversing) are not adjusted.			CB (control board) DF CB (RADF control board) PS306 (original registration) PS308 (original conveyance) PS309 (original reversing)
		E67-2	M302 (original feed) abnormality			CB (control board) DF CB (RADF control board) M302 (original feed)
		E67-3	READ/WRITE abnormality on non-volatile memory FM301 (ADF fan) abnormality			CB (control board) DF CB (RADF control board) FM301 (ADF fan)

	Classification	Warning code	Causes	Operation in case of warning occurrence	Releasing method	Estimated abnormal parts
△1 FNS	FS-106 abnormality	E70	Communication error.	The main body and FNS are stopped immediately. The main relay is turned OFF and all keys are not accepted.	Set the main switch to ON/ OFF.	FNS CB (FNS control board) Connector
		E77-1	The shift unit does not reach the shift position or home position within the specified time.			FNS CB (FNS control board) M2 (roller shift) PS18 (roller shift HP)
		E77-2	PS2 (tray upper limit) does not go ON within the specified time after the start of M3 (tray up/ down) operation.			FNS CB (FNS control board) M3 (tray up/down) PS2 (tray upper limit)
		E77-3	PS8 (matching plate HP) does not go OFF within the specified time after the start of M5 (matching plate) operation, or does not turn ON after OFF.			FNS CB (FNS control board) M5 (matching plate) PS8 (matching plate HP)
		E77-4	PS9 (paper exit belt HP) does not go ON within the specified time from the start of M7 (paper exit roller) operation. (Only in staple mode.)			FNS CB (FNS control board) M7 (paper exit roller) PS9 (paper exit belt HP)
		E77-5	Opening/closing operation is not completed within the specified time from the start of M8 (paper exit slot) operation. (PS12 (paper exit slot) does not go ON or OFF.)			FNS CB (FNS control board) M8 (paper exit slot) PS12 (paper exit slot)
		E77-6	PS11 (stapler transfer HP) does not go OFF after the start of M11 (stapler) operation. Or it does not go ON after OFF.			FNS CB (FNS control board) M11 (stapler) PS11 (stapler transfer HP)
		E77-7	M12 (stapler rotation) abnormality			FNS CB (FNS control board) M11 (stapler movement)
		E77-8	Stapler rotation position abnormality			FNS CB (FNS control board) PS21 (stapler rotation HP1) PS22 (stapler rotation HP2)
		E77-11	The Staple HP does not go ON within the specified time after the start of the staple motor operation, or even when the rotation of the motor is reversed.			FNS CB (FNS control board) M10 (stapler F) PS17 (stapler F HP)
		E77-12				FNS CB (FNS control board) M9 (stapler R) PS15 (stapler R HP)

	Classification	Warning code	Causes	Operation in case of warning occurrence	Releasing method	Estimated abnormal parts
Main body		F56-2	Main body operation panel communication error	Full auto screen appears.	OFF of the SW1 (main) → ON	OB1 (operation board 1) CB (control board)

△1

	Classification	Warning code	Causes	Operation in case of warning occurrence	Releasing method	Estimated abnormal parts
FNS	FS-108BM abnormality	E70	Communication error.	The main body and FNS are stopped immediately. The main relay is turned OFF and all keys are not accepted.	Set the main switch to ON/OFF.	FNS CB (FNS control board) Connector
		E77-1	The shift unit does not reach the shift position or home position within the specified time.			FNS CB (FNS control board) M2 (roller shift) PS18 (roller shift HP)
		E77-2	PS2(tray upper limit) or PS7 (staple paper exit upper limit) does not go ON within the specified time after the start of M3(tray up-down) operation.			FNS CB (FNS control board) M3 (tray up-down) PS2 (tray upper limit) PS7 (staple paper exit upper limit)
		E77-3	PS8 (alignment plate/upper HP) does not go OFF within the specified time after the start of M5 (alignment plate/upper) operation, or does not turn ON after OFF.			FNS CB (FNS control board) RB (relay board) M5 (alignment plate/upper) PS8 (alignment plate/upper HP)
		E77-4	M7(paper exit roller) does not reach the prescribed speed within the specified time after the start of its operation.			FNS CB (FNS control board) M7 (paper exit roller)
		E77-5	Opening/closing operation is not completed within the specified time after the start of M8(paper exit opening) operation. (PS12(paper exit opening) does not go ON or OFF.)			FNS CB (FNS control board) M8 (paper exit opening) PS12 (paper exit opening)
		E77-6	PS11(stapler movement HP) does not go OFF after the start of M11(stapler movement) operation. Or it does not go ON after OFF.			FNS CB (FNS control board) RB (relay board) M11 (stapler movement) PS11 (stapler movement HP)
		E77-7	M4 (stapler rotation) abnormality.			FNS CB (FNS control board) RB (relay board) M4 (stapler rotation)
		E77-8	Stapler/R rotation abnormality.			FNS CB (FNS control board) RB (relay board) PS14 (stapler rotation HP)
		E77-11	PS33(clincher HP/F) and PS34(stapler HP/F) do not go ON within the specified time after the start of M23(clincher / F) and M24(stapler/F) operation.			FNS CB (FNS control board) RB (relay board) M23 (clincher/F) M24 (stapler/F) PS33 (clincher HP/F) PS34 (stapler HP/F)
		E77-12	PS30(clincher HP/R) and PS31(stapler HP/R) do not go ON within the specified time after the start of M21(clincher R) and M22(stapler R) operation.			FNS CB (FNS control board) RB(relay board) M21(clincher/R) M22(stapler/R) PS30(clincher HP/R) PS31(stapler HP/R)
		E77-15	M1(FNS conveyance) does not reach the prescribed speed within the specified time after the start of its operation.			FNS CB (FNS control board) M1(FNS conveyance)

△1

	Classification	Warning code	Causes	Operation in case of warning occurrence	Releasing method	Estimated abnormal parts
FNS	FS-108BM abnormality	E77-21	PS23(stapling and folding stopper HP) does not go ON within the specified time after M14(stapling and folding stopper) starts operation of HP detection.	The main body and FNS are stopped immediately. The main relay is turned OFF and all keys are not accepted.	Set the main switch to ON/ OFF.	FNS CB (FNS control board) RB (relay board) M14 (stapling and folding stopper) PS23 (stapling and folding stopper HP)
		E77-22	PS24(alignment plate/lower HP) does not go ON within the specified time after M15(alignment plate/lower) starts operation of HP detection.			FNS CB (FNS control board) RB (relay board) M15 (alignment plate/lower) PS24 (alignment plate/lower HP)
		E77-23	PS21(stapling and folding stopper release HP) does not go ON within the specified time after M17(stapling and folding stopper release) starts operation of HP detection.			FNS CB (FNS control board) RB (relay board) M17 (stapling and folding stopper release) PS21 (stapling and folding stopper release HP)
		E77-24	PS27(folding stopper HP) does not go ON within the specified time after M18(folding stopper) starts operation of HP detection.			FNS CB (FNS control board) M18 (folding stopper) PS27 (folding stopper HP)
		E77-25	PS22(folding knife HP) does not go ON within the specified time after M19(folding knife) starts operation of HP detection.			FNS CB (FNS control board) M19 (folding knife) PS22 (folding knife HP)
		E77-26	M20(folding conveyance) does not reach the prescribed speed within the specified time after the start of its operation.			FNS CB (FNS control board) M20 (folding conveyance)
	PI-108 abnormality	E77-41	PS203 (sheet tray lower limit) or PS204 (sheet tray upper limit) does not go ON within the specified time after the start of M201(sheet tray) operation.			FNS CB (FNS control board) DB(PI drive board) M201(sheet tray) PS203(sheet tray lower limit) PS204(sheet tray upper limit)
	FS-108BM abnormality	E77-91	Communication abnormality in FNS CB(FNS control board) when sub-CPU receives data.			FNS CB (FNS control board)
		E77-92	Communication abnormality in FNS CB(FNS control board) when main CPU receives data.			FNS CB (FNS control board)

[3] KRDS

Operations for KRDS error depend on the setting in the memory DIP SW area, byte 39.

Classification	Warning code	Causes	Operation in case of warning occurrence	Releasing method
KRDS memory data unmatching error	KRDS system error 0	Memory data in KRDS is different from that in copier when turning on copier.	byte39-bit0:copy enable Error is displayed in message area. Copy operation is enabled.	Initialize KRDS memory so that it can be consistent with that for the copier. (Re-execute set up procedure.) Then complete byte 33-bit0.
	FJ0		byte39-bit0:copy disable Error is displayed in message and magnification indication area. Copy operation is disabled.	
Communication error between copier and KRDS	KRDS system error 1	Communication IC error is detected. (parity, framing error, etc.)	byte39-bit1:copy enable Error is displayed in message area. Copy operation is enabled.	Same as the above
	FJ1		byte39-bit1:copy disable Error is displayed in message and magnification indication area. Copy operation is disabled.	
RS232C line error	KRDS system error 2	Error has occurred in control signal of modem cable (RS232C) connecting KRDS to modem.	byte39-bit2:copy enable Error is displayed in message area. Copy operation is enabled.	Check if the modem power is turned on. Check if the cable is correctly connected.
	PJ2		byte39-bit2:copy disable Error is displayed in message and magnification indication area. Copy operation is disabled.	
Modem AT command error	KRDS system error 3	Modem control command error is detected. (For KRDS, this error is indicated after retry is repeated 10 times.)	byte39-bit3:copy enable Error is displayed in message area. Copy operation is enabled.	Turn on copier after modem set up (memory DIP SW area) is checked.
	FJ3		byte39-bit3:copy disable Error is displayed in message and magnification indication area. Copy operation is disabled.	
Communication error between host and KRDS	KRDS system error 4	Communication IC error is detected. (parity, framing error, etc.)	byte39-bit4:copy enable Error is displayed in message area. Copy operation is enabled.	
	FJ4		byte39-bit4:copy disable Error is displayed in message and magnification indication area. Copy operation is disabled.	
Copy immediate stop indication	PJ5	This is indicated if immediate stop is specified for KRDS DIP SW byte 39 and 40. (Remote control is available from copier or host computer.)	byte40-bit0:STOP and byte39-bit5:copy disable Error is displayed in message and magnification indication area. Copy operation stops after the serial copy is finished.	Set to byte40-bit0:copy and byte39-bit5:copy enable, then unlock the immediate stop. (Remote control is available from copier or host computer.)

LIST OF DISCONNECTED CONNECTOR CODES

When an abnormality occurs, there is a possibility that a connector may have been disconnected. When the connector is connected normally, conduct trouble shooting in accordance with the jamming list.

[1] Paper Jam

Code	Number of disconnected connector
J10	CN53(Paper feed), CN233(Paper feed), CN112(Paper feed relay), CN120(Control board)
J11	CN38(Paper feed), CN230(Paper feed), CN234(Paper feed), CN327(Paper feed), CN112(Paper feed relay), CN120(Control board)
J12	CN38(Paper feeding), CN231(Paper feeding), CN234(Paper feeding), CN328(Paper feeding), CN112(Paper feed relay), CN120(Control board)
J13	CN205(LCT motor), CN204(LCT motor), CN720(LCT vertical conveyance), CN721(LCT vertical conveyance), CN726(LCT vertical conveyance)
J14	CN205(LCT motor), CN204(LCT motor), CN712(LCT horizontal conveyance), CN714(LCT horizontal conveyance), CN716(LCT horizontal conveyance)
J17	CN68(Peper feed), CN73(Optics), CN141(Paper feed), CN112(Paper feed relay)
J19	CN713(LCT horizontal conveyance), CN722(LCT relay), CN727(LCT horizontal conveyance)
J21	CN34(Drum), CN62(Control board), CN85(On the control board), CN87(2nd paper feed)
J30	CN86(2nd paper feed)
J31	CN32(2nd paper feeding), CN42(Upper portion of the control board), CN46(2nd paper feed)
J32	CN6(Control board), CN40(Fixing), CN98(Fixing drawer relay), CN392(Fixing drawer), CN620/621(Reversal unit relay)
J92	CN555(ADU), CN562(ADU vertical conveyance)
J93	CN551(ADU)
J94	CN532(ADU), CN534(ADU), CN550(ADU), CN553(ADU), CN557(ADU), CN559(ADU)
J96	CN552(ADU)

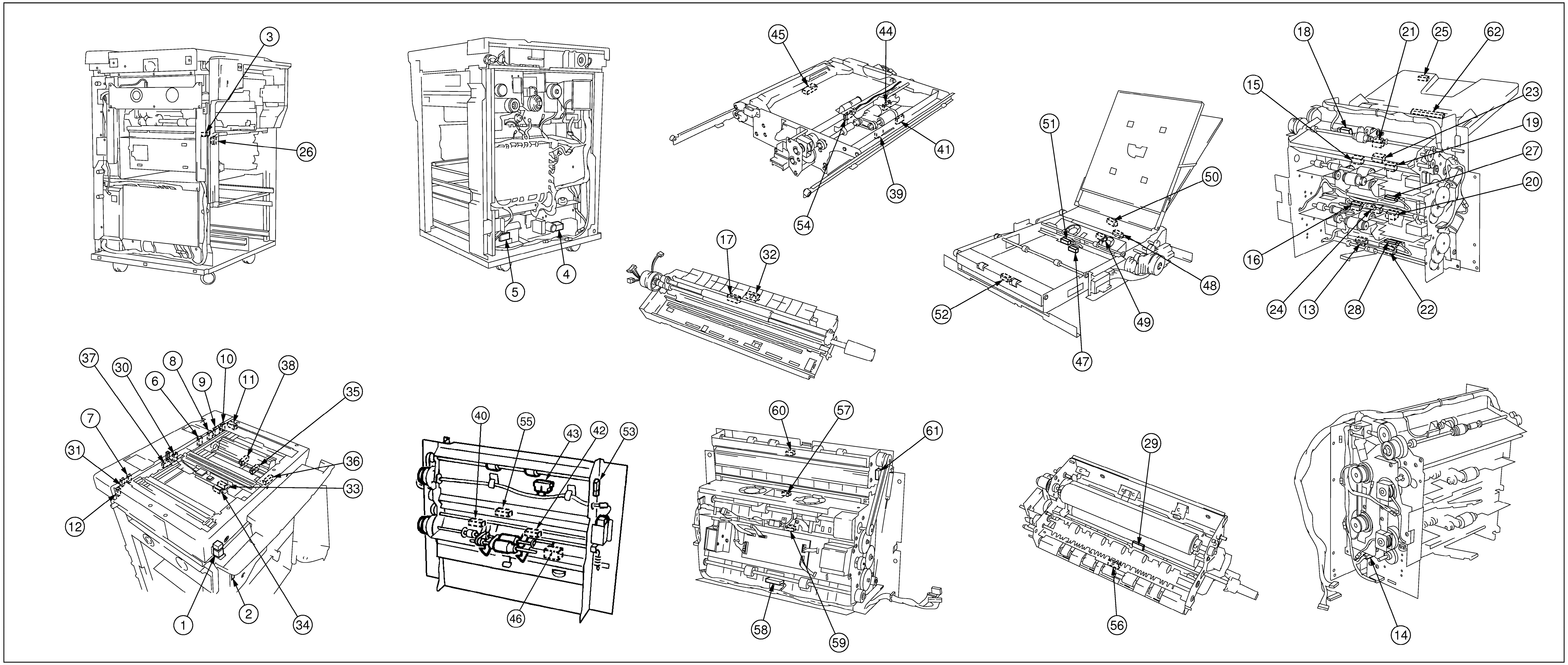
[2] Abnormality

Code	Number of disconnected connector
F18-1	CN1, CN7(Control board), CN23 (in paper feed unit), CN110 (Paper feed relay)
F18-2	CN1, CN7 (Control board), CN24 (in paper feed unit), CN110 (Paper feed relay)
F18-3	CN732 (lower relay at rear face), CN122 (right side of control board at rear face)
F18-4	CN731 (lower relay at rear face), CN122 (right side of control board at rear face)
F18-5	CN140(Control board), CN126 (lower relay at rear face)
F22-1	CN30(Control board), CN63 (upper left of rear face)
F22-2	CN30(Control board), CN42 (lower left of rear face), CN39 (transfer & separation corona unit at front face)
F28-1	Does not occur due to connector come-out.
F28-2	Does not occur due to connector come-out.
F28-3	Does not occur due to connector come-out.
F34-1	Does not occur due to connector come-out.
F34-2	Does not occur due to connector come-out.
F35	Faulty contact in CN6 (Control board), CN98 (right upper relay at rear face), CN392 (fixing drawer), etc.
F36	CN81 (right lower relay at rear face), CN382 (DC power supply at paper exit face), main relay Faston
F41-1	CN9 (control board), CN224 (optics drive board), CN223 (control board)
F41-4	CN9 (control board), CN92 (optics at rear face)
F43-2	CN29 (bottom right of rear face), CN80 (bottom right of rear face), CN85 (bottom right of rear face)
E43-5	CN470 (optics at rear face)
E46	Does not occur due to connector come-out.
E47-1	CN481 (control board), CN425, CN430 (image processing board)
E47-5	CN421, 422, 423 (image processing board), CN440, 441, 442 (write)
E47-6	CN428 (image processing board), CN450 (electronic RDH board)
F51-1	CN161 (top right of rear face)
F51-2	CN123 (right side relay of control board at rear face), CN204 (main motor), CN205 (main motor)
F51-3	CN14 (toner hopper)
F51-4	CN88 (DC power supply at paper exit face), CN217 (developing motor)
F51-5	CN30 (control board), CN124 (bottom right of rear face), CN125 (top right of rear face), CN201 (drum motor)
F51-6	CN95 (write), CN322 (control board), CN326 (top left of rear face)
F51-7	CN122 (right side of control board at rear face)
F51-8	CN203 (LCT motor), CN204 (LCT motor)
F51-9	CN400 (DC power supply at paper exit face), CN226, CN224, CN228 (optics drive board), CN142 (optics at rear face)
F52-1	CN16 (top right relay of rear face)
F52-2	CN15 (center of rear face)
F52-3	CN11 (top left of rear face)
F52-4	CN97 (rear optics unit), CN128 (right side relay of control board at rear face)
F52-5	CN127 (right side relay of control board at rear face), CN49 (top of paper exit face)
F52-6	CN99 (DC power supply at paper exit face), CN48 (top left of rear face), CN121 (right side relay of control board at rear face), CN65 (control board)
F52-8,9	CN522, CN523, CN524, CN525, CN526 (ADU unit)
E52-10	CN30 (control board), CN237 (top left cover of DC power supply)

[3] Others

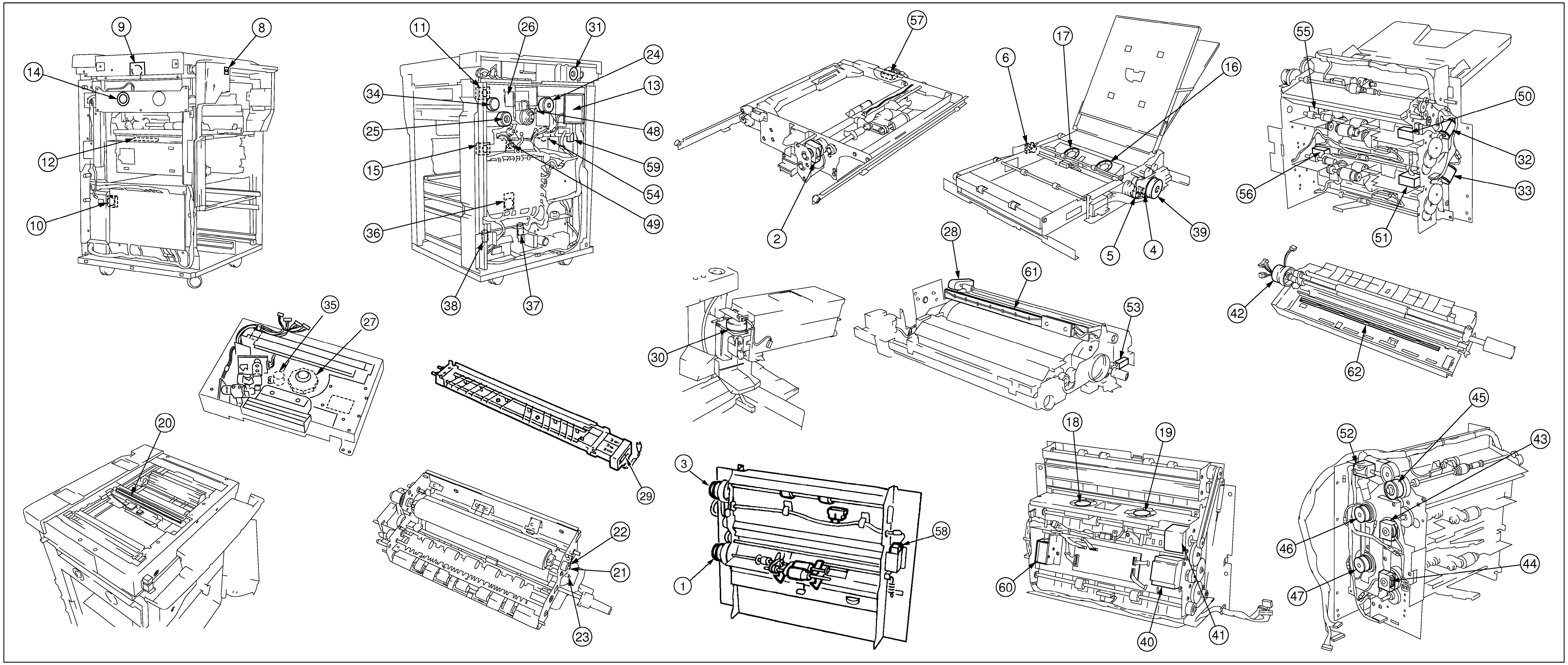
Classification	Phenomenon	Number of disconnected connector
Power supply abnormality	Power not supplied	CN4 (control board), CN8 (control side DC board), CN60 (control board), CN390 (bottom right of rear face), CN397 (DC power supply at bottom of rear face), CN398 (DC power supply at bottom of paper exit side), CN61 (control board)
	Warm-up not completed	CN223, CN224, CN226 (optics drive board), CN400 (DC power supply at bottom of paper exit face), CN6 (control board), CN82 (center of front external)
Lamp abnormality	Exposure lamp does not light.	CN470 (optics at rear face), CN29 (lamp lighter)
	Upper/lower fixing lamp does not light.	CN81 (bottom right of rear face), main relay Faston CN380 (CVR at bottom right of rear face), fixing interlock Faston (center of front external), CN382 (DC power supply at bottom of paper exit face)
Paper feed tray abnormality	Upper/lower stage tray continues to rise.	CN25 (paper feed unit), CN76 (paper feed unit), CN58 (paper feed unit), CN59 (paper feed unit)
	LCT-1000 or LCT-1500 tray continues to rise.	CN709 (bottom right drawer at rear face), CN711 (horizontal conveyance section), CN724 (vertical conveyance section)
Recognition abnormality	Finisher is not recognized.	CN114 (control board), CN28 (DC power supply at bottom of paper exit side), CN101 (external at rear face)
	ADF is not recognized.	CN106 (control board), CN28 (DC power supply at bottom of paper exit side), CN100/102 (ADF)
	Upper/lower paper feed tray is not recognized.	CN56 (center of rear face), CN60 (control board)
	LCT-1000 or LCT-1500 tray is not recognized.	CN120 (control board), CN733 (bottom left of rear face), CN734 (bottom right of rear face)
	LCT-3500 tray is not recognized.	CN140 (control board), CN127
Image abnormality	Image is faint.	CN217 (top left of rear face)
	Blank paper	CN62 (control board), CN420 (image processing board), CN411 (A/D board)
	Slightly soiled blank paper	CN84 (high voltage power supply on rear face/1)
	Very faint image	CN85 (Rear face of main body)
	Entirely black	CN470 (optics at rear face), CN29 (lamp lighter)
Operation panel	LED does not light.	CN223 (top of paper feed side), CN215, CN214, CN210, CN217, CN220 (in operation panel)
	LCD backlight does not light.	CN77 (operation panel), CN71 (operation panel), CN215 (operation panel), CN223 (top of paper feed side), CN3 (control board)
Alarm indicator	Close top of right side panel.	CN7 (control board), CN52 (paper feed unit), CN111 (paper feed relay)
	Close bottom of right side panel.	CN83 (control board), CN722 (relay at bottom of paper feed side), CN725 (LCT vertical conveyance)
	Close left side panel.	CN57 (control board), CN530 (top right of rear face), CN561 (inside ADU guide unit), CN200 (control board), CN622 (reversal unit relay)
	Set ADU.	CN57 (control board)
	Insert developing unit connectors.	CN50 (drum unit drawer), CN51 (in drum unit), CN5 (control board), CN63 (center of rear face)
	Insert key counter.	CN35 (control board)
	Close front door.	CN831 (interlock switch at center of front external), CN395 (DC power supply at bottom of paper exit face), CN396 (DC power supply at bottom of paper exit face)
	Supply toner (despite the fact that there is sufficient toner).	CN17 (in toner hopper), CN12 (at side of paper feed unit), CN14 (in toner hopper)

7065 ELECTRICAL PARTS LAYOUT DRAWING



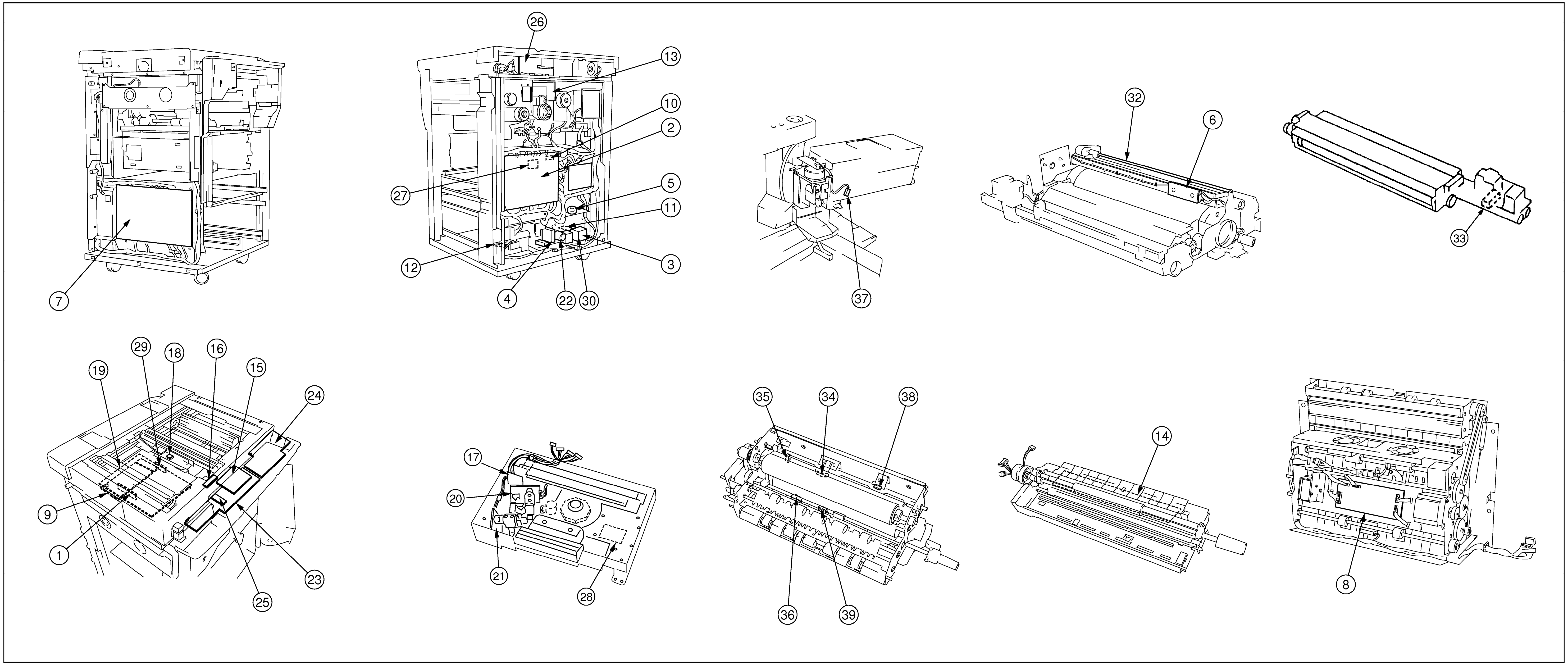
1. Switch Sensor

①	SW1	Main switch
②	MS1	Interlock MS1
③	MS4	Fixing unit set interlock MS4
④	MS141	LCT interlock (1500)
⑤	MS142	LCT interlock (1000)
⑥	PS2	Scanner brake PS
⑦	PS3	Shading position PS
⑧	PS4	Paper feed restart PS
⑨	PS5	Optics return PS
⑩	PS7	Optics timing PS
⑪	PS8	Glass detection PS
⑫	PS9	ADF home position PS
⑬	PS10	Optic syncs PS 2
⑭	PS11	Paper conveyance door PS
⑮	PS12	Upper tray no paper PS
⑯	PS13	Lower tray no paper PS
⑰	PS14	Registration PS
⑱	PS15	By-pass no paper PS
⑲	PS16	Upper limit PS (upper)
⑳	PS17	Upper limit PS (lower)
㉑	PS18	No feed PS
㉒	PS19	Optics sync. PS 1
㉓	PS20	Pre try PS (upper)
㉔	PS21	Pre try PS (lower)
㉕	PS22	By-pass paper size PS
㉖	PS24	Fixing set PS
㉗	PS25	Prefeed PS (upper)
㉘	PS26	Prefeed PS (lower)
㉙	PS27	Fixing unit paper exit PS
㉚	PS28	Scan EE PS
㉛	PS29	ADF brake PS
㉜	PS30	By-pass PS
㉝	PS40	APS sensor 1
㉞	PS41	APS sensor 2
㉟	PS42	APS sensor 3
㊱	PS43	APS sensor 4
㊲	PS45	APS timing PS
㊳	PS48	APS sensor 7
㊴	PS140	LCT no paper PS (1500)
㊵	PS141	LCT no paper PS (1000)
㊶	PS142	LCT upper limit PS (1500)
㊷	PS143	LCT upper limit PS (1000)
㊸	PS144	LCT conveyance PS (1000)
㊹	PS145	LCT prefeed PS (1500)
㊺	PS146	LCT conveyance PS (1500)
㊻	PS147	LCT prefeed PS (1000)
㊼	PS151	ADU no paper PS
㊽	PS152	ADU paper feed PS
㊾	PS153	ADU reversal detection PS
㊿	PS154	ADU paper exit PS 1
(51)	PS155	ADU paper exit PS 2
(52)	PS156	ADU paper exit PS 3
(53)	PS160	LCT interlock PS
(54)	PS200	LCT pre try PS (1500)
(55)	PS210	LCT pre try PS (1000)
(56)	PS301	Reversal point PS
(57)	PS302	Reversal paper feed point PS
(58)	PS303	ADU gate PS
(59)	PS304	ADU paper feed PS
(60)	PS305	Reversal paper exit PS
(61)	PS306	Reversal paper exit interlock PS
(62)	VR1	By-pass tray paper size VR



2. Load

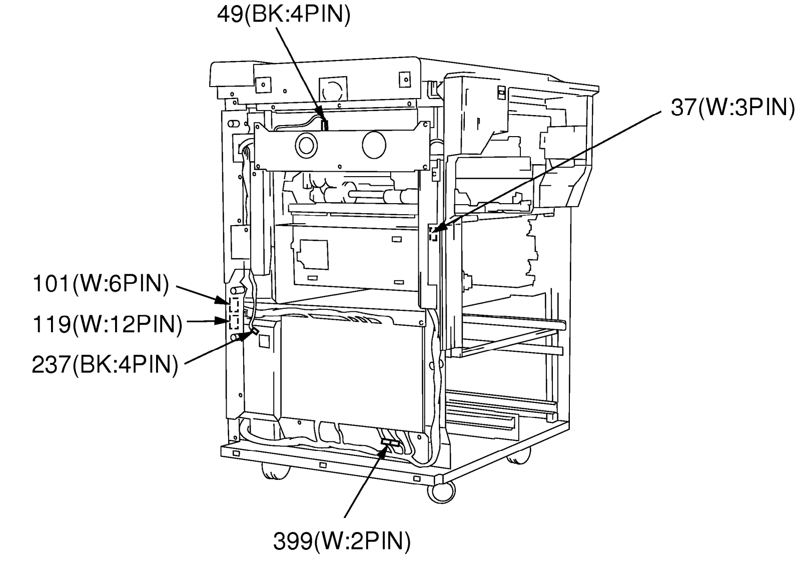
①	CL1	LCT 1st paper feed CL (1000)
②	CL2	LCT 1st paper feed CL (1500)
③	CL3	LCT conveyance CL
④	CL151	ADU paper feed CL
⑤	CL152	ADU reversal CL
⑥	CL153	ADU timing CL
⑦	C(K)	Key counter
⑧	C(T)	Total counter
⑨	FM2	Optics cooling fan
⑩	FM3	DCPS cooling fan
⑪	FM11	Polygon cooling fan
⑫	FM14	Conveyance suction fan
⑬	FM16	Main body cooling fan
⑭	FM22	E-RDH cooling fan
⑮	FM30	Developing suction fan
⑯	FM153	ADU cooling fan 1
⑰	FM154	ADU cooling fan 2
⑱	FM203	Paper exit fan 1
⑲	FM204	Paper exit fan 2
⑳	L1	Exposure lamp
㉑	L2	Fixing heater lamp 1
㉒	L3	Fixing heater lamp 2
㉓	L4	Fixing heater lamp 3
㉔	M1	Main motor
㉕	M3	Developing drive motor
㉖	M4	Drum motor
㉗	M5	Polygon motor
㉘	M7	Charger cleaning motor
㉙	M8	Transfer/separation cleaning motor
㉚	M10	Toner supply motor
㉛	M12	Optics drive motor
㉜	M17	Upper tray motor
㉝	M18	Lower tray motor
㉞	M35	Agitator screw motor
㉟	M40	Laser correction motor
㊱	M140	LCT paper feed motor
㊲	M141	LCT tray motor (1500)
㊳	M142	LCT tray motor (1000)
㊴	M151	ADU paper feed motor
㊵	M201	Reversal paper exit motor
㊶	M202	Paper exit motor
㊷	MC3	2nd paper feed MC
㊸	MC5	Paper feed MC (upper)
㊹	MC6	Paper feed MC (lower)
㊺	MC7	Paper feed MC (by-pass)
㊻	MC8	Middle conveyance MC1
㊼	MC9	Middle conveyance MC2
㊽	MC10	Cleaner MC
㊾	MC11	Assist drive MC
㊿	SD1	1st paper feed SD (upper)
(51)	SD2	1st paper feed SD (lower)
(52)	SD3	1st paper feed SD (by-pass)
(53)	SD4	Separation claw SD
(54)	SD5	Conveyance SD
(55)	SD6	Upper tray SD
(56)	SD7	Lower tray SD
(57)	SD140	LCT paper feed SD (1500)
(58)	SD141	LCT paper feed SD (1000)
(59)	SD153	Paper exit gate SD
(60)	SD160	Reversal gate SD
(61)	PCL	Pre-charging lamp
(62)	TSL	Transfer Synchronization lamp

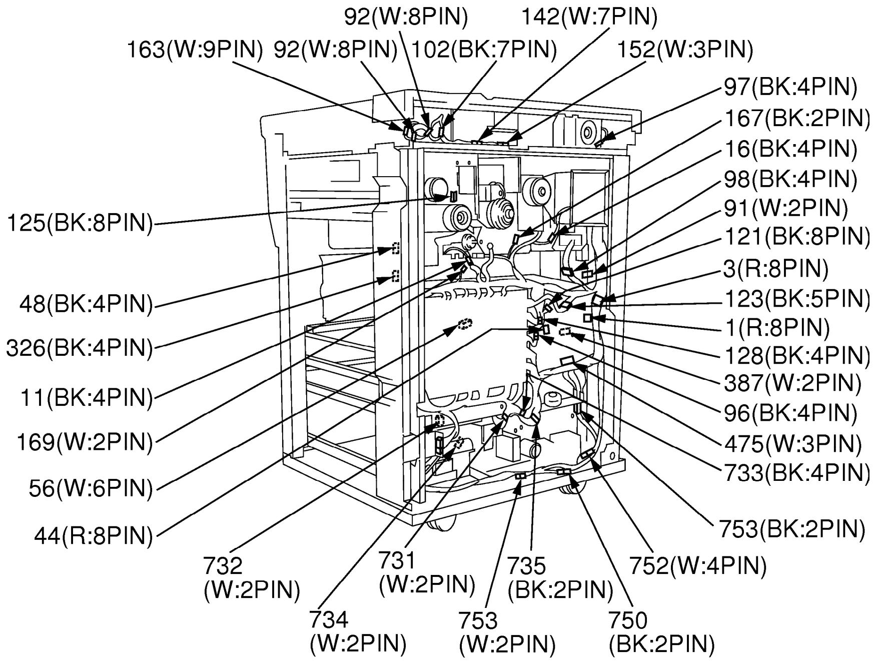


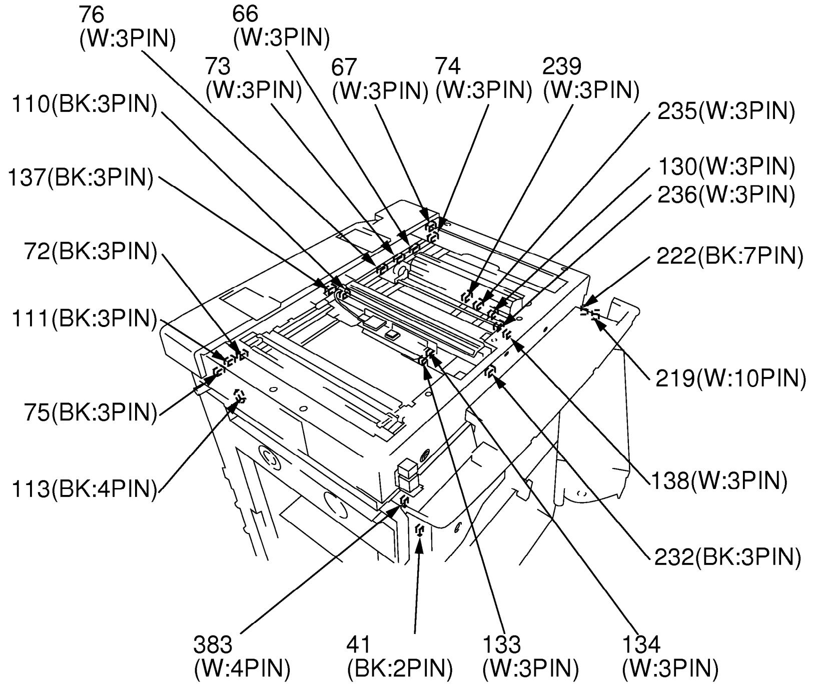
3. Others

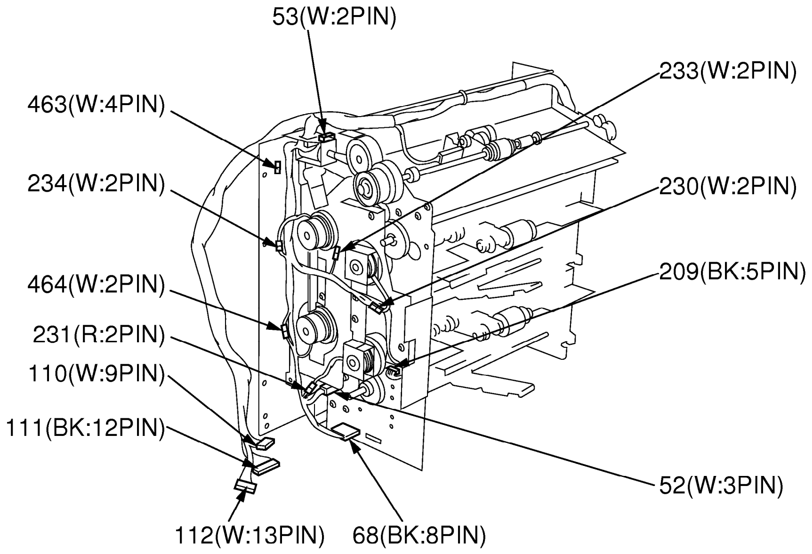
①	ADB	AD conversion board
②	CB	Control board
③	CBR	Circuit breaker
④	COIL1	Coil 1
⑤	COIL2	Coil 2
⑥	DB	Drum board
⑦	DCPS	DC power supply unit
⑧	EPFDB	Paper exit drive board
⑨	E-RDH	Electronic RDH processing board
⑩	HTR1	Internal heater 1
⑪	HTR2	Internal heater 2
⑫	HTR3	Internal heater 3
⑬	HV1	High voltage unit 1
⑭	HV2	High voltage unit 2
⑮	INDICATING BOARD	
⑯	INDICATING STARTER	
⑰	INDEXSB	Index sensor board
⑱	INVB	Inverter board
⑲	IPB	Image processing board
⑳	LDB1	Laser driver board 1
㉑	LDB2	Laser driver board 2
㉒	NF	Noise filter
㉓	OB1	Operation board 1
㉔	OB2	Operation board 2
㉕	OB3	Operation board 3
㉖	OPMDB	Optics motor drive board
㉗	—	Paper size detection board
㉘	PMDB	Polygon drive board
㉙	RDH IFB	E-RDH I/F board
㉚	RL1	Main relay
㉛	—	—
㉜	TCSB	Toner control sensor board
㉝	TDS	Toner density sensor
㉞	TH1	Fixing temperature sensor 1
㉟	TH2	Fixing temperature sensor 2
㊱	TH3	Fixing temperature sensor 3
㊲	TLD	Toner level detection sensor
㊳	TS1	Thermostat 1 (upper)
㊴	TS2	Thermostat 2 (lower)

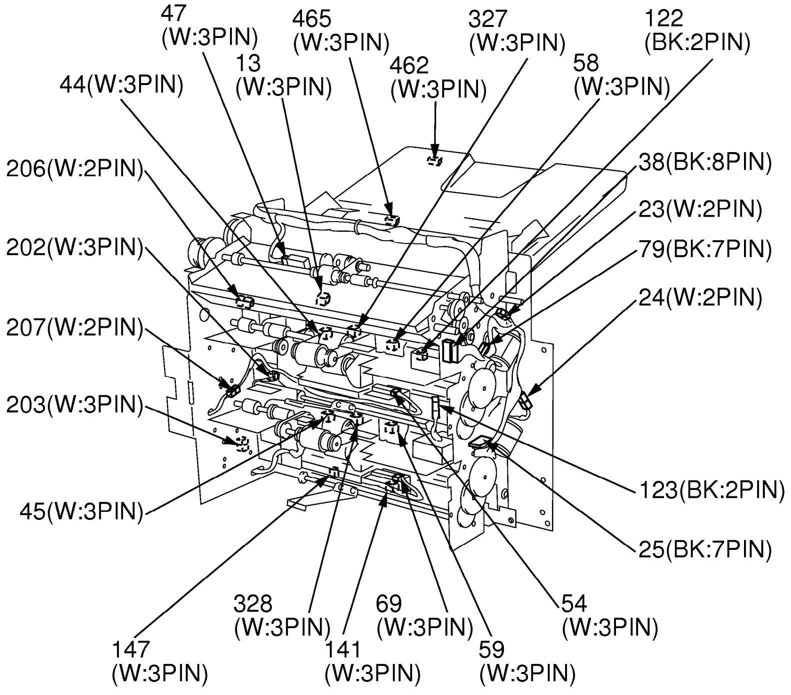
7065 CONNECTOR LAYOUT DRAWING

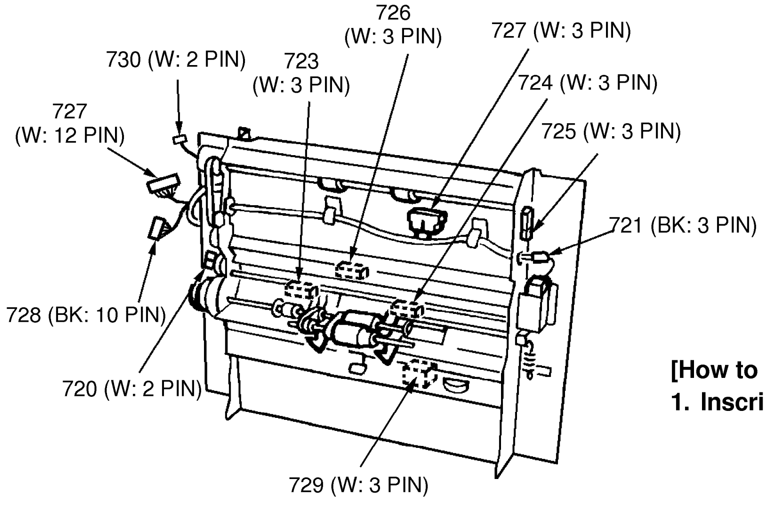

49(BK:4PIN)
37(W:3PIN)
101(W:6PIN)
119(W:12PIN)
237(BK:4PIN)
399(W:2PIN)

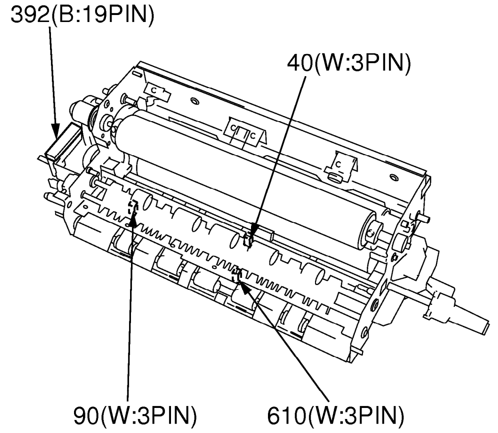

92(W:8PIN)
142(W:7PIN)
163(W:9PIN)
92(W:8PIN)
102(BK:7PIN)
152(W:3PIN)
97(BK:4PIN)
167(BK:2PIN)
16(BK:4PIN)
98(BK:4PIN)
91(W:2PIN)
121(BK:8PIN)
3(R:8PIN)
123(BK:5PIN)
1(R:8PIN)
128(BK:4PIN)
387(W:2PIN)
96(BK:4PIN)
475(W:3PIN)
733(BK:4PIN)
753(BK:2PIN)
752(W:4PIN)
125(BK:8PIN)
48(BK:4PIN)
326(BK:4PIN)
11(BK:4PIN)
169(W:2PIN)
56(W:6PIN)
44(R:8PIN)
732 (W:2PIN)
731 (W:2PIN)
735 (BK:2PIN)
734 (W:2PIN)
753 (W:2PIN)
750 (BK:2PIN)


76 (W:3PIN)
66 (W:3PIN)
73 (W:3PIN)
67 (W:3PIN)
74 (W:3PIN)
239 (W:3PIN)
110(BK:3PIN)
235(W:3PIN)
137(BK:3PIN)
130(W:3PIN)
236(W:3PIN)
72(BK:3PIN)
222(BK:7PIN)
111(BK:3PIN)
219(W:10PIN)
75(BK:3PIN)
113(BK:4PIN)
138(W:3PIN)
232(BK:3PIN)
383 (W:4PIN)
41 (BK:2PIN)
133 (W:3PIN)
134 (W:3PIN)


53(W:2PIN)
233(W:2PIN)
463(W:4PIN)
234(W:2PIN)
230(W:2PIN)
209(BK:5PIN)
464(W:2PIN)
231(R:2PIN)
110(W:9PIN)
111(BK:12PIN)
52(W:3PIN)
112(W:13PIN)
68(BK:8PIN)

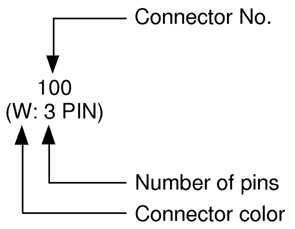

47 (W:3PIN)
465 (W:3PIN)
327 (W:3PIN)
122 (BK:2PIN)
13 (W:3PIN)
462 (W:3PIN)
58 (W:3PIN)
44(W:3PIN)
206(W:2PIN)
38(BK:8PIN)
23(W:2PIN)
202(W:3PIN)
79(BK:7PIN)
24(W:2PIN)
207(W:2PIN)
203(W:3PIN)
123(BK:2PIN)
45(W:3PIN)
25(BK:7PIN)
328 (W:3PIN)
69 (W:3PIN)
54 (W:3PIN)
147 (W:3PIN)
141 (W:3PIN)
59 (W:3PIN)


726 (W: 3 PIN)
727 (W: 3 PIN)
730 (W: 2 PIN)
723 (W: 3 PIN)
724 (W: 3 PIN)
727 (W: 12 PIN)
725 (W: 3 PIN)
721 (BK: 3 PIN)
728 (BK: 10 PIN)
720 (W: 2 PIN)
729 (W: 3 PIN)


392(B:19PIN)
40(W:3PIN)
90(W:3PIN)
610(W:3PIN)

[How to read connector numbers]

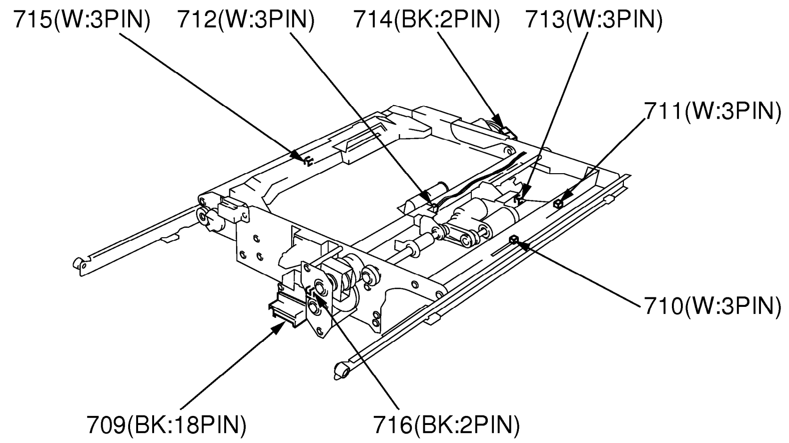
1. Inscribed contents

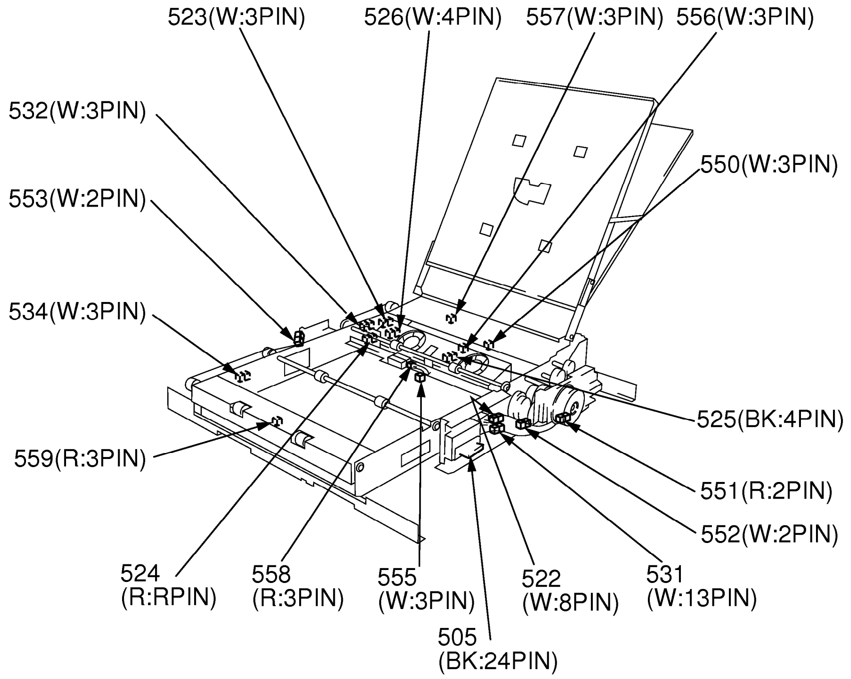

Connector No.
100
(W: 3 PIN)
Number of pins
Connector color

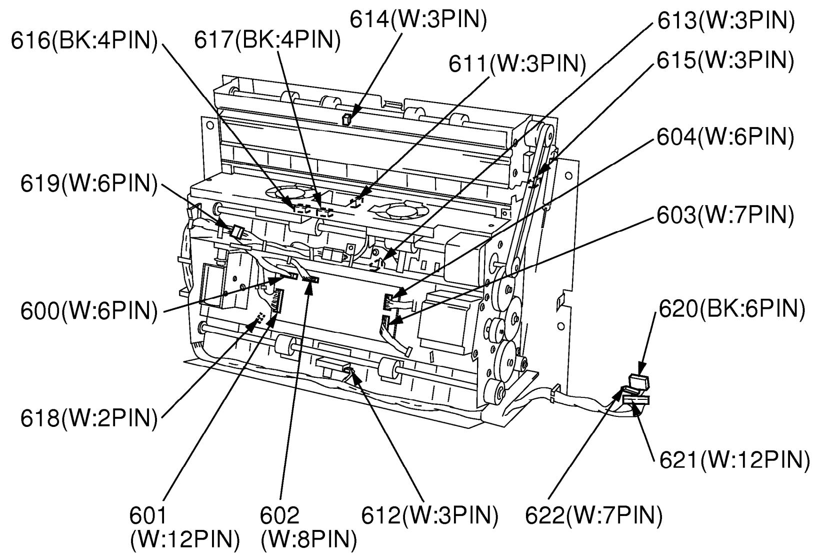
2. Color code

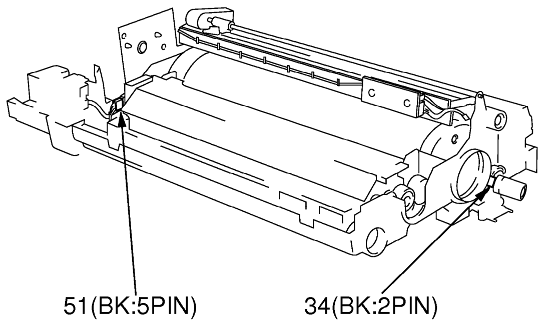
BN:	Brown	LB:	Light blue	W:	White
R:	Red	S:	Silver	BK:	Black
O:	Orange	B:	Blue	P:	Pink
Y:	Yellow	V:	Violet		
GN:	Green	GY:	Gray		

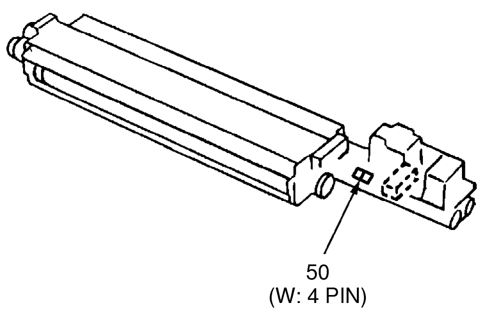
As an example, (B/W) indicates that the male side of the connector is blue and the female side white.

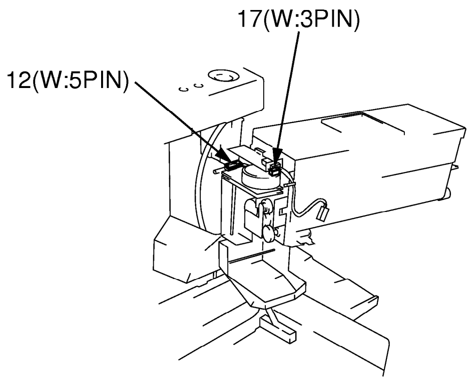

715(W:3PIN)
712(W:3PIN)
714(BK:2PIN)
713(W:3PIN)
711(W:3PIN)
710(W:3PIN)
709(BK:18PIN)
716(BK:2PIN)

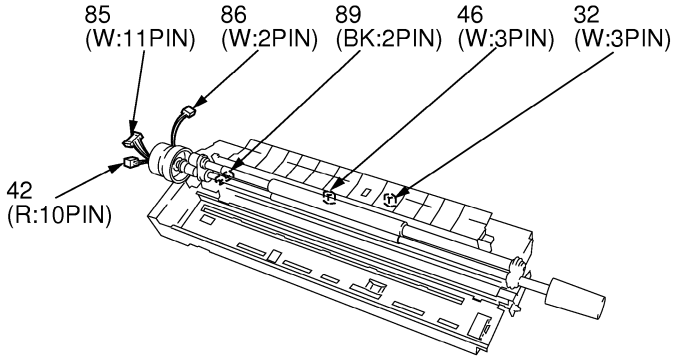

523(W:3PIN)
526(W:4PIN)
557(W:3PIN)
556(W:3PIN)
532(W:3PIN)
550(W:3PIN)
553(W:2PIN)
534(W:3PIN)
525(BK:4PIN)
559(R:3PIN)
551(R:2PIN)
552(W:2PIN)
524 (R:RPIN)
558 (R:3PIN)
555 (W:3PIN)
522 (W:8PIN)
531 (W:13PIN)
505 (BK:24PIN)

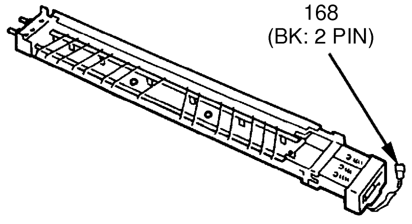

614(W:3PIN)
613(W:3PIN)
616(BK:4PIN)
617(BK:4PIN)
611(W:3PIN)
615(W:3PIN)
604(W:6PIN)
619(W:6PIN)
603(W:7PIN)
600(W:6PIN)
620(BK:6PIN)
618(W:2PIN)
621(W:12PIN)
601 (W:12PIN)
602 (W:8PIN)
612(W:3PIN)
622(W:7PIN)


51(BK:5PIN)
34(BK:2PIN)

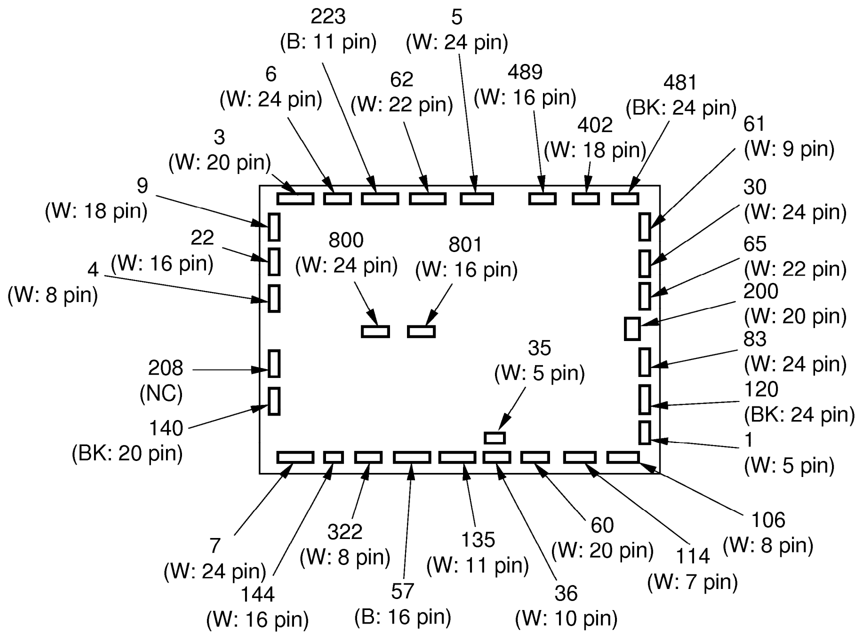



17(W:3PIN)
12(W:5PIN)

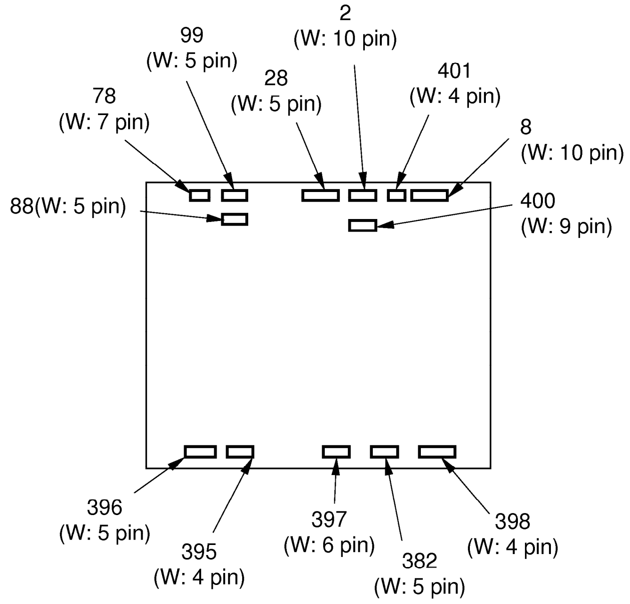

85 (W:11PIN)
86 (W:2PIN)
89 (BK:2PIN)
46 (W:3PIN)
32 (W:3PIN)
42 (R:10PIN)



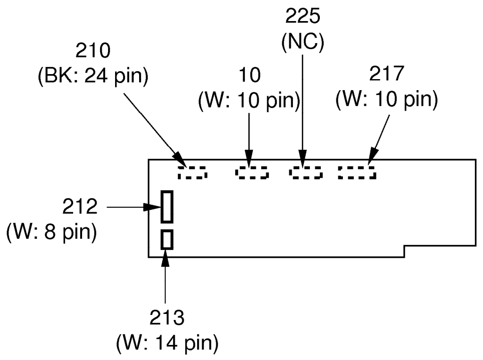
Control Board


223 (B: 11 pin)
5 (W: 24 pin)
6 (W: 24 pin)
62 (W: 22 pin)
489 (W: 16 pin)
481 (BK: 24 pin)
3 (W: 20 pin)
402 (W: 18 pin)
61 (W: 9 pin)
9 (W: 18 pin)
30 (W: 24 pin)
22 (W: 16 pin)
800 (W: 24 pin)
801 (W: 16 pin)
65 (W: 22 pin)
4 (W: 8 pin)
200 (W: 20 pin)
83 (W: 24 pin)
208 (NC)
35 (W: 5 pin)
120 (BK: 24 pin)
140 (BK: 20 pin)
1 (W: 5 pin)
106 (W: 8 pin)
7 (W: 24 pin)
322 (W: 8 pin)
135 (W: 11 pin)
60 (W: 20 pin)
114 (W: 7 pin)
144 (W: 16 pin)
57 (B: 16 pin)
36 (W: 10 pin)

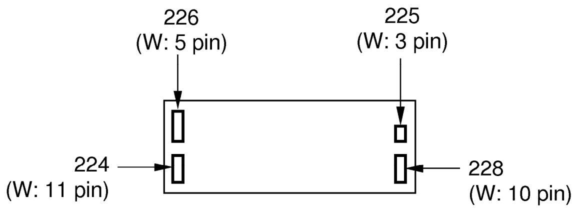
DCPS


2 (W: 10 pin)
99 (W: 5 pin)
28 (W: 5 pin)
401 (W: 4 pin)
78 (W: 7 pin)
8 (W: 10 pin)
88(W: 5 pin)
400 (W: 9 pin)
396 (W: 5 pin)
395 (W: 4 pin)
397 (W: 6 pin)
382 (W: 5 pin)
398 (W: 4 pin)

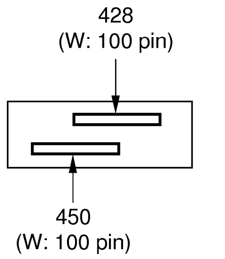
Operation Board/1


225
(NC)
210
(BK: 24 pin)
10
(W: 10 pin)
217
(W: 10 pin)
212
(W: 8 pin)
213
(W: 14 pin)

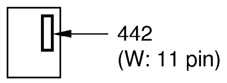
Optics Drive Board


226
(W: 5 pin)
225
(W: 3 pin)
224
(W: 11 pin)
228
(W: 10 pin)

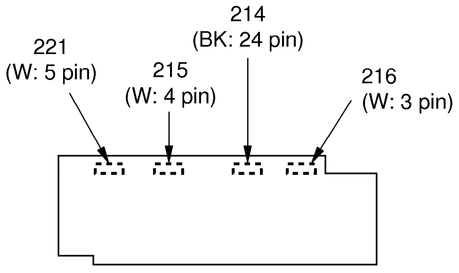
E-RDH I/F Board


428
(W: 100 pin)
450
(W: 100 pin)

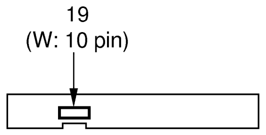
Index Detection Board



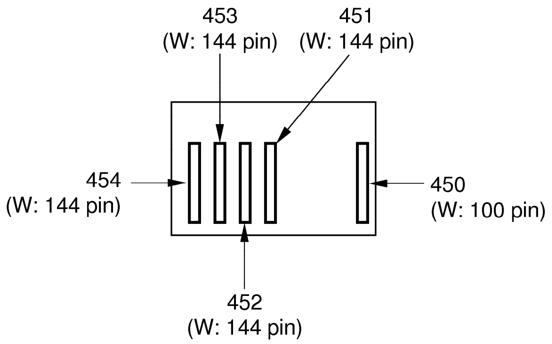
Operation Board/2


214
(BK: 24 pin)
221
(W: 5 pin)
215
(W: 4 pin)
216
(W: 3 pin)

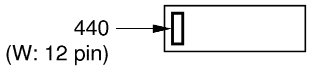
Toner Control Board



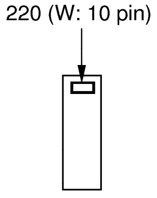
RDH Processing Board


453
(W: 144 pin)
451
(W: 144 pin)
454
(W: 144 pin)
450
(W: 100 pin)
452
(W: 144 pin)

LD Drive Board



Operation Board/3



INDICATING STARTER

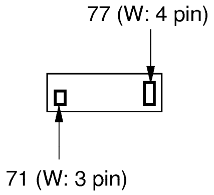
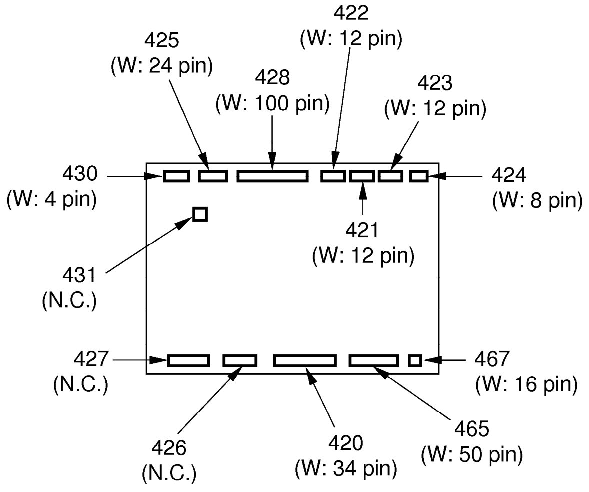
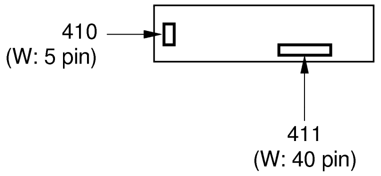

77 (W: 4 pin)
71 (W: 3 pin)

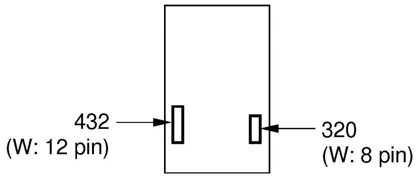
Image Processing Board


422
(W: 12 pin)
425
(W: 24 pin)
428
(W: 100 pin)
423
(W: 12 pin)
430
(W: 4 pin)
424
(W: 8 pin)
421
(W: 12 pin)
431
(N.C.)
427
(N.C.)
467
(W: 16 pin)
465
(W: 50 pin)
426
(N.C.)
420
(W: 34 pin)

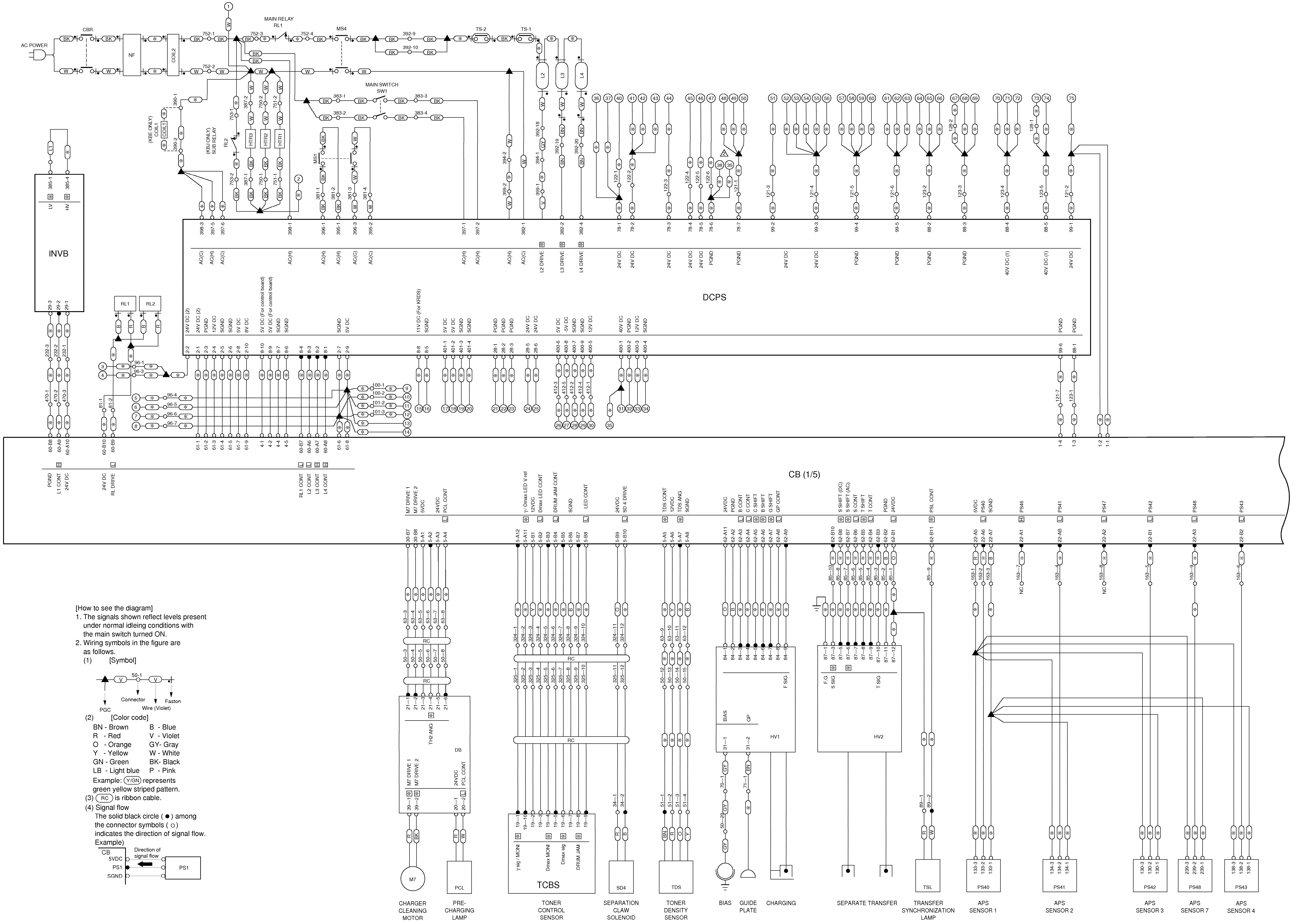
AD Converter Board


410
(W: 5 pin)
411
(W: 40 pin)

Polygon Driver Board


432
(W: 12 pin)
320
(W: 8 pin)

7065 OVERALL WIRING DIAGRAM (1/5)


AC POWER
CBR
NF
COIL2
MAIN RELAY RL1
MS4
TS-2
TS-1
L2
L3
L4
MAIN SWITCH SW1
(KBE ONLY) COIL1
(KBJ ONLY) SUB RELAY RL2
HTR3
HTR2
HTR1
MS1
INVB
LV
HV
DCPS
RL1
RL2
CB (1/5)
PGND
L1 CONT
24V DC
RL DRIVE
RL1 CONT
L2 CONT
L3 CONT
L4 CONT
M7 DRIVE 1
M7 DRIVE 2
5VDC
24VDC
PCL CONT
γ / Dmax LED V ref
12VDC
Dmax LED CONT
DRUM JAM CONT
SGND
LED CONT
SD 4 DRIVE
TDS CONT
TDS ANG
B CONT
C CONT
C SHIFT
B SHIFT
G SHIFT
GP CONT
S SHIFT (DC)
S SHIFT (AC)
S CONT
T SHIFT
T CONT
PSL CONT
PS40
PS46
PS41
PS47
PS42
PS48
PS43
RC
DB
TH2 ANG
M7
PCL
Y sig / MONI
Dmax MONI
Dmax sig
DRUM JAM
TCBS
SD4
TDS
BIAS
GP
F SIG
HV1
F.G
S SIG
T SIG
HV2
TSL
CHARGER CLEANING MOTOR
PRE-CHARGING LAMP
TONER CONTROL SENSOR
SEPARATION CLAW SOLENOID
TONER DENSITY SENSOR
BIAS
GUIDE PLATE
CHARGING
SEPARATE TRANSFER
TRANSFER SYNCHRONIZATION LAMP
APS SENSOR 1
APS SENSOR 2
APS SENSOR 3
APS SENSOR 7
APS SENSOR 4
50-1
V
Connector
Faston
PGC
Wire (Violet)
CB
5VDC
PS1
SGND
Direction of signal flow
PS1

[How to see the diagram]

1. The signals shown reflect levels present under normal idleing conditions with the main switch turned ON.
2. Wiring symbols in the figure are as follows.

(1) [Symbol]

(2) [Color code]

BN - Brown
B - Blue
R - Red
V - Violet
O - Orange
GY- Gray
Y - Yellow
W - White
GN - Green
BK- Black
LB - Light blue
P - Pink

Example: (Y/GN) represents green yellow striped pattern.

(3) (RC) is ribbon cable.

(4) Signal flow
The solid black circle (●) among the connector symbols (○) indicates the direction of signal flow.
Example)

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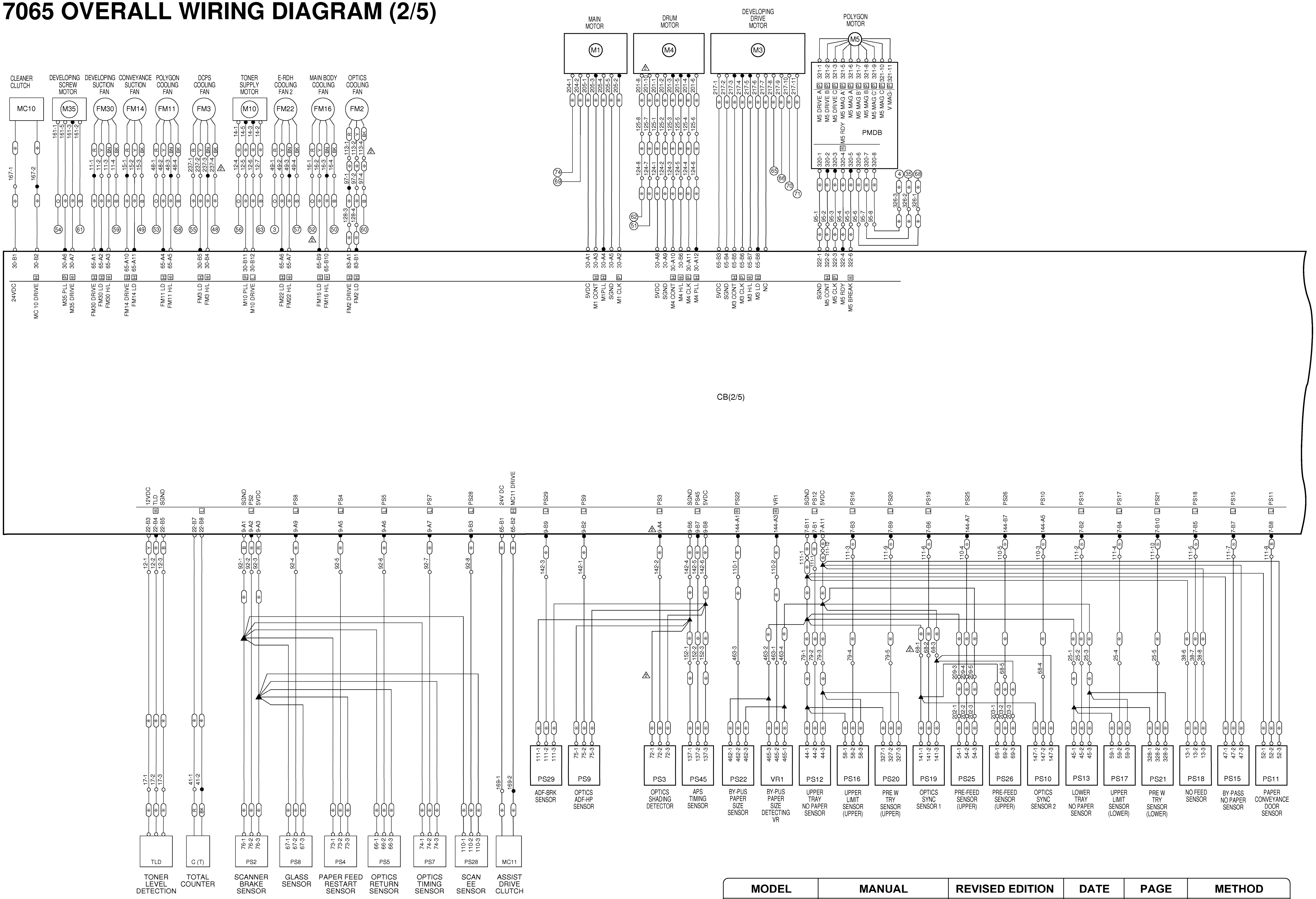
7065 OVERALL WIRING DIAGRAM (2/5)


MAIN MOTOR
M1
DRUM MOTOR
M4
DEVELOPING DRIVE MOTOR
M3
POLYGON MOTOR
M5
PMDB
M5 DRIVE A
M5 DRIVE B
M5 DRIVE C
M5 MAG A
M5 MAG B
M5 MAG C
V MAG-
M5 RDY
CLEANER CLUTCH
MC10
DEVELOPING SCREW MOTOR
M35
DEVELOPING SUCTION FAN
FM30
CONVEYANCE SUCTION FAN
FM14
POLYGON COOLING FAN
FM11
DCPS COOLING FAN
FM3
TONER SUPPLY MOTOR
M10
E-RDH COOLING FAN 2
FM22
MAIN BODY COOLING FAN
FM16
OPTICS COOLING FAN
FM2
24VDC
MC 10 DRIVE
M35 PLL
M35 DRIVE
FM30 DRIVE
FM30 LD
FM30 H/L
FM14 DRIVE
FM14 LD
FM11 LD
FM11 H/L
FM3 LD
FM3 H/L
M10 PLL
M10 DRIVE
FM22 LD
FM22 H/L
FM16 LD
FM16 H/L
FM2 DRIVE
FM2 LD
5VDC
M1 CONT
M1PLL
SGND
M1 CLK
M4 CONT
M4 H/L
M4 CLK
M4 PLL
M3 CONT
M3 CLK
M3 H/L
M3 LD
NC
M5 CONT
M5 CLK
M5 RDY
M5 BREAK
CB(2/5)
12VDC
TLD
24V DC
MC11 DRIVE
PS2
PS8
PS4
PS5
PS7
PS28
PS29
PS9
PS3
PS45
PS22
VR1
PS12
PS16
PS20
PS19
PS25
PS26
PS10
PS13
PS17
PS21
PS18
PS15
PS11
TLD
TONER LEVEL DETECTION
C (T)
TOTAL COUNTER
SCANNER BRAKE SENSOR
GLASS SENSOR
PAPER FEED RESTART SENSOR
OPTICS RETURN SENSOR
OPTICS TIMING SENSOR
SCAN EE SENSOR
MC11
ASSIST DRIVE CLUTCH
ADF-BRK SENSOR
OPTICS ADF-HP SENSOR
OPTICS SHADING DETECTOR
APS TIMING SENSOR
BY-PUS PAPER SIZE SENSOR
BY-PUS PAPER SIZE DETECTING VR
UPPER TRAY NO PAPER SENSOR
UPPER LIMIT SENSOR (UPPER)
PRE W TRY SENSOR (UPPER)
OPTICS SYNC SENSOR 1
PRE-FEED SENSOR (UPPER)
PRE-FEED SENSOR (UPPER)
OPTICS SYNC SENSOR 2
LOWER TRAY NO PAPER SENSOR
UPPER LIMIT SENSOR (LOWER)
PRE W TRY SENSOR (LOWER)
NO FEED SENSOR
BY-PASS NO PAPER SENSOR
PAPER CONVEYANCE DOOR SENSOR

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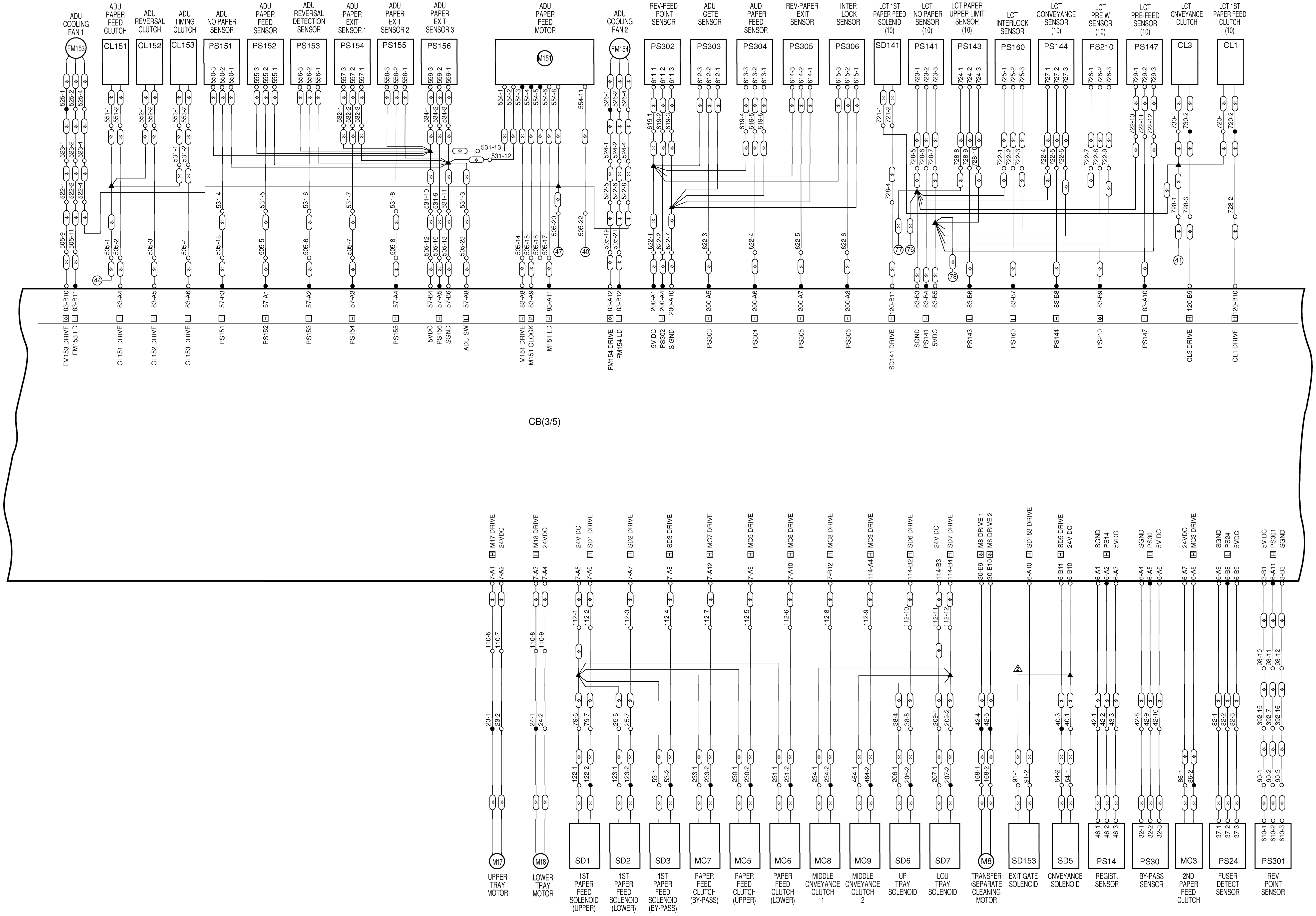
7065 OVERALL WIRING DIAGRAM (3/5)


ADU COOLING FAN 1
FM153
ADU PAPER FEED CLUTCH
CL151
ADU REVERSAL CLUTCH
CL152
ADU TIMING CLUTCH
CL153
ADU NO PAPER SENSOR
PS151
ADU PAPER FEED SENSOR
PS152
ADU REVERSAL DETECTION SENSOR
PS153
ADU PAPER EXIT SENSOR 1
PS154
ADU PAPER EXIT SENSOR 2
PS155
ADU PAPER EXIT SENSOR 3
PS156
ADU PAPER FEED MOTOR
M151
ADU COOLING FAN 2
FM154
REV-FEED POINT SENSOR
PS302
ADU GETE SENSOR
PS303
AUD PAPER FEED SENSOR
PS304
REV-PAPER EXIT SENSOR
PS305
INTER LOCK SENSOR
PS306
LCT 1ST PAPER FEED SOLENID (10)
SD141
LCT NO PAPER SENSOR (10)
PS141
LCT PAPER UPPER LIMIT SENSOR (10)
PS143
LCT INTERLOCK SENSOR
PS160
LCT CONVEYANCE SENSOR (10)
PS144
LCT PRE W SENSOR (10)
PS210
LCT PRE-FEED SENSOR (10)
PS147
LCT CNVEYANCE CLUTCH
CL3
LCT 1ST PAPER FEED CLUTCH (10)
CL1
FM153 DRIVE
FM153 LD
CL151 DRIVE
CL152 DRIVE
CL153 DRIVE
M151 DRIVE
M151 CLOCK
M151 LD
FM154 DRIVE
FM154 LD
SD141 DRIVE
CL3 DRIVE
CL1 DRIVE
CB(3/5)
M17 DRIVE
M18 DRIVE
SD1 DRIVE
SD2 DRIVE
SD3 DRIVE
MC7 DRIVE
MC5 DRIVE
MC6 DRIVE
MC8 DRIVE
MC9 DRIVE
SD6 DRIVE
SD7 DRIVE
M8 DRIVE 1
M8 DRIVE 2
SD153 DRIVE
SD5 DRIVE
MC3 DRIVE
M17
UPPER TRAY MOTOR
M18
LOWER TRAY MOTOR
SD1
1ST PAPER FEED SOLENOID (UPPER)
SD2
1ST PAPER FEED SOLENOID (LOWER)
SD3
1ST PAPER FEED SOLENOID (BY-PASS)
MC7
PAPER FEED CLUTCH (BY-PASS)
MC5
PAPER FEED CLUTCH (UPPER)
MC6
PAPER FEED CLUTCH (LOWER)
MC8
MIDDLE CNVEYANCE CLUTCH 1
MC9
MIDDLE CNVEYANCE CLUTCH 2
SD6
UP TRAY SOLENOID
SD7
LOU TRAY SOLENOID
M8
TRANSFER /SEPARATE CLEANING MOTOR
SD153
EXIT GATE SOLENOID
SD5
CNVEYANCE SOLENOID
PS14
REGIST. SENSOR
PS30
BY-PASS SENSOR
MC3
2ND PAPER FEED CLUTCH
PS24
FUSER DETECT SENSOR
PS301
REV POINT SENSOR

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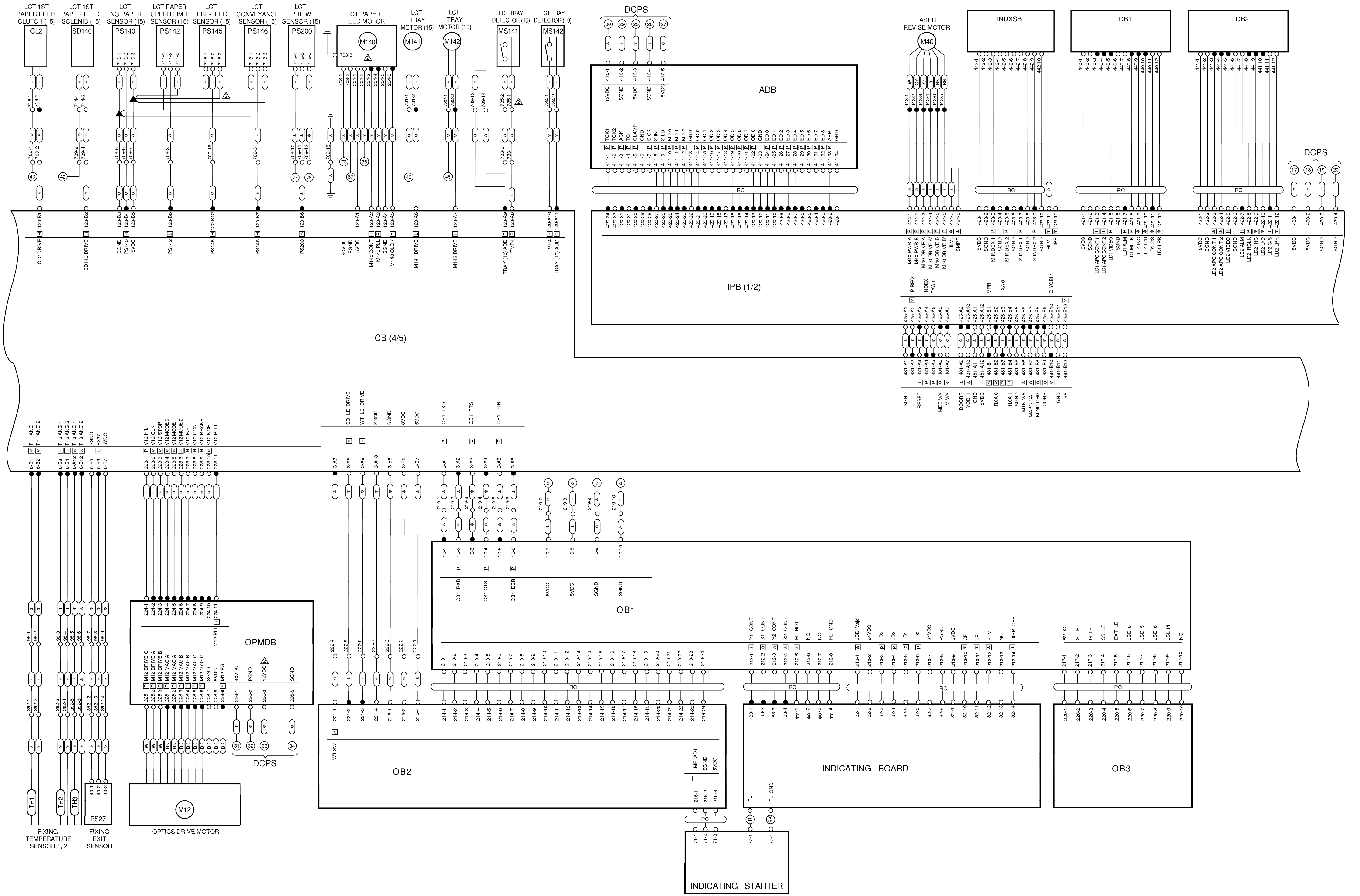
7065 OVERALL WIRING DIAGRAM (4/5)



LCT 1ST PAPER FEED CLUTCH (15)
CL2
LCT 1ST PAPER FEED SOLENID (15)
SD140
LCT NO PAPER SENSOR (15)
PS140
LCT PAPER UPPER LIMIT SENSOR (15)
PS142
LCT PRE-FEED SENSOR (15)
PS145
LCT CONVEYANCE SENSOR (15)
PS146
LCT PRE W SENSOR (15)
PS200
LCT PAPER FEED MOTOR
M140
LCT TRAY MOTOR (15)
M141
LCT TRAY MOTOR (10)
M142
LCT TRAY DETECTOR (15)
MS141
LCT TRAY DETECTOR (10)
MS142
DCPS
ADB
LASER REVISE MOTOR
M40
INDXSB
LDB1
LDB2
RC
IPB (1/2)
CB (4/5)
OPMDB
OB1
OB2
OB3
INDICATING BOARD
INDICATING STARTER
TH1
TH2
TH3
PS27
M12
FIXING TEMPERATURE SENSOR 1, 2
FIXING EXIT SENSOR
OPTICS DRIVE MOTOR

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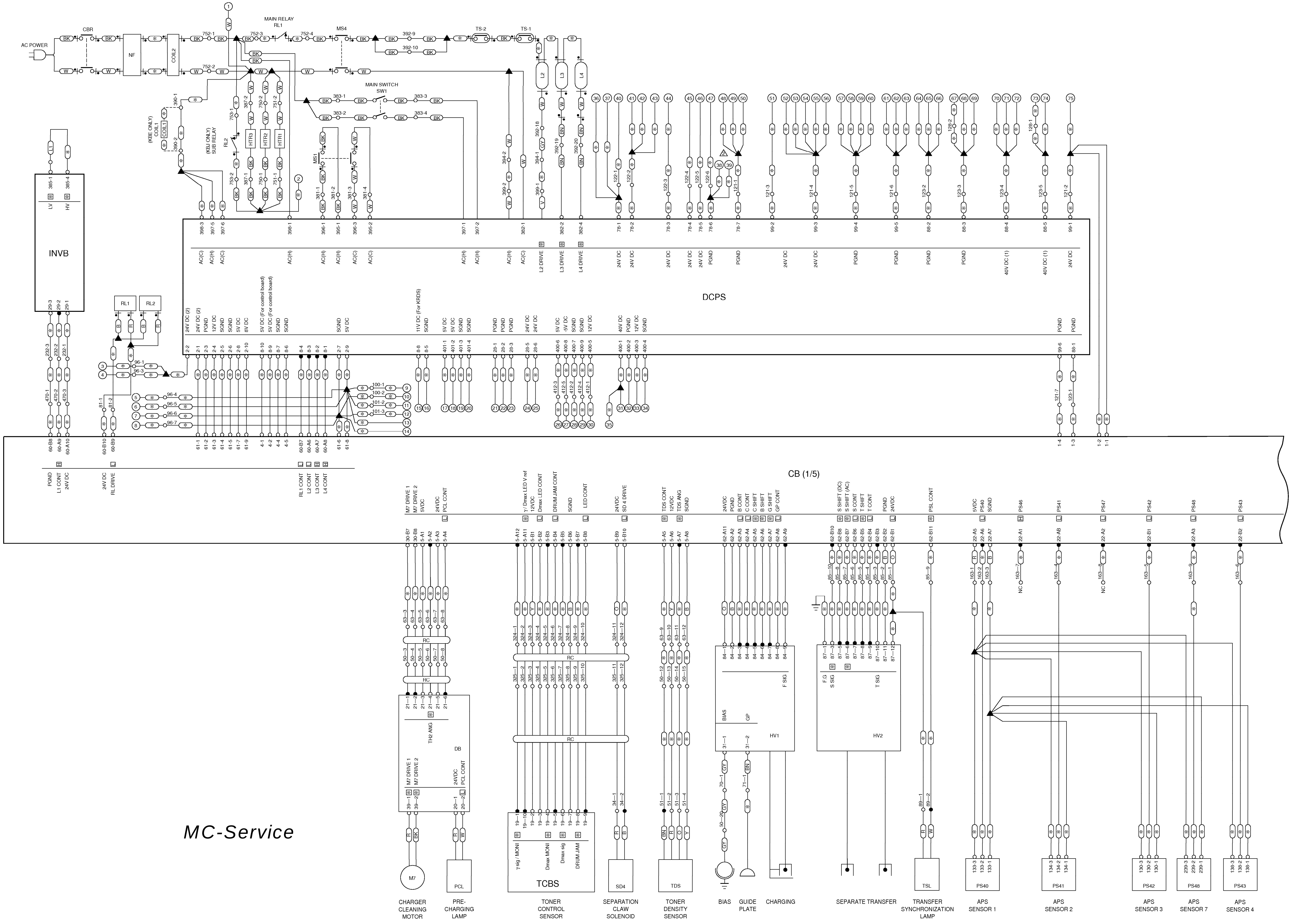
7065 OVERALL WIRING DIAGRAM (5/5)


AC POWER
CBR
NF
COIL2
MAIN RELAY RL1
MS4
TS-2
TS-1
L2
L3
L4
MAIN SWITCH SW1
(KBE ONLY) COIL1
(KBJ ONLY) SUB RELAY RL2
HTR3
HTR2
HTR1
MS1
INVB
LV
HV
RL1
RL2
DCPS
CB (1/5)
RC
DB
TH2 ANG
M7 DRIVE 1
M7 DRIVE 2
24VDC
PCL CONT
TCBS
HV1
HV2
BIAS
GP
F SIG
S SIG
T SIG
M7
PCL
SD4
TDS
TSL
PS40
PS41
PS42
PS48
PS43
CHARGER CLEANING MOTOR
PRE-CHARGING LAMP
TONER CONTROL SENSOR
SEPARATION CLAW SOLENOID
TONER DENSITY SENSOR
BIAS
GUIDE PLATE
CHARGING
SEPARATE TRANSFER
TRANSFER SYNCHRONIZATION LAMP
APS SENSOR 1
APS SENSOR 2
APS SENSOR 3
APS SENSOR 7
APS SENSOR 4

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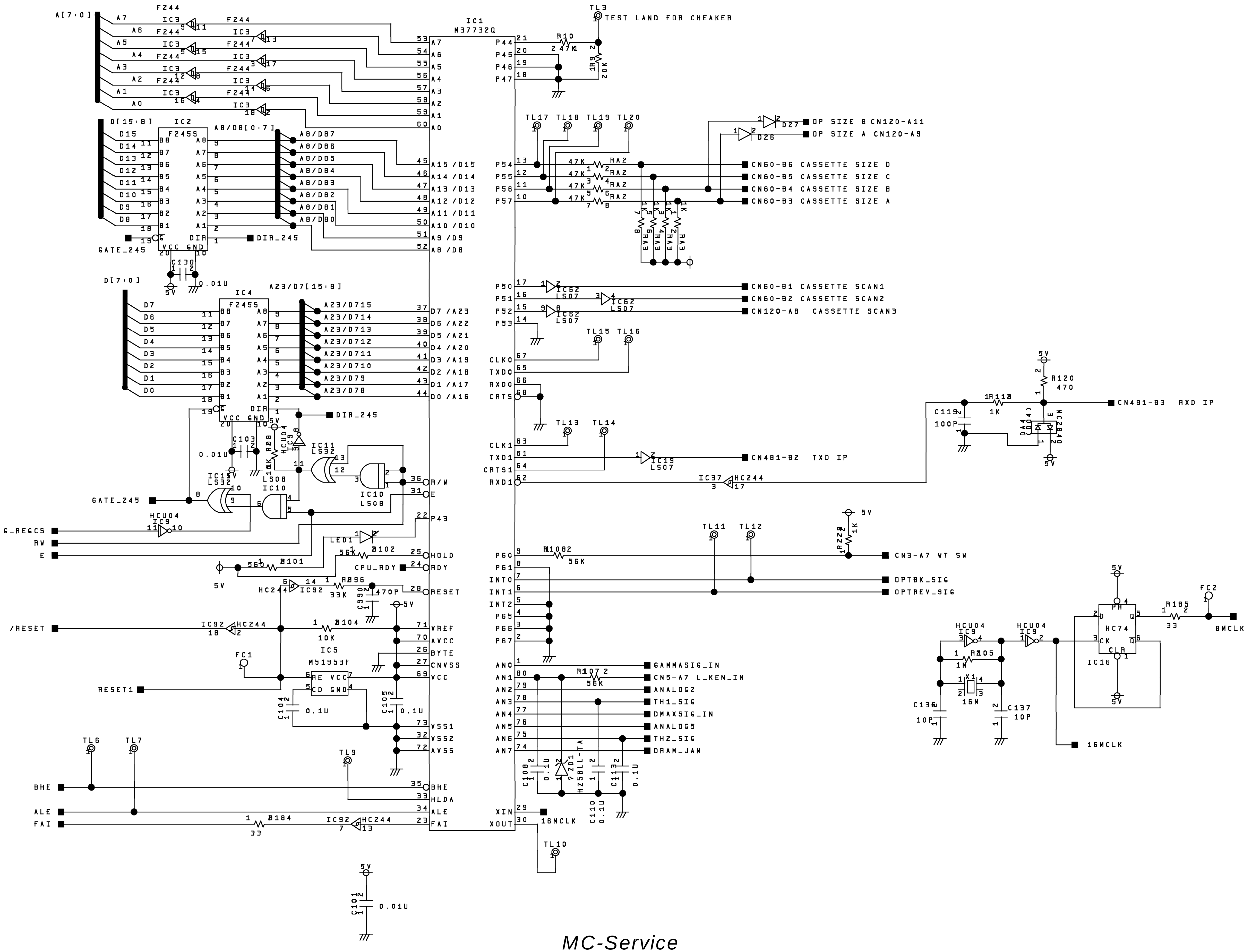
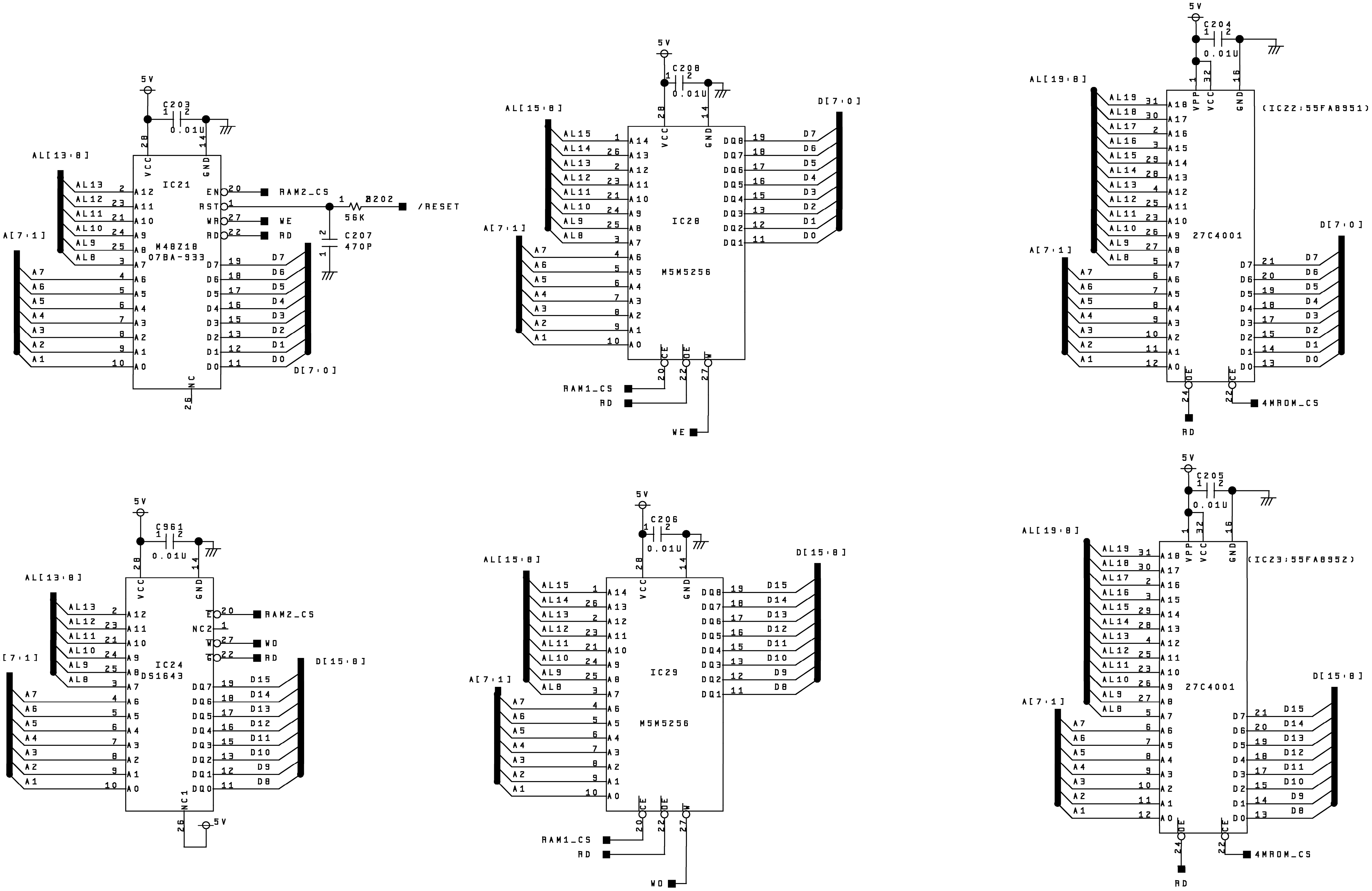
CONTROL BOARD CIRCUIT DIAGRAM (1/19)



A[7:0]
D[15:8]
D[7:0]
A8/D8[0:7]
A23/D7[15:8]
IC1
M37732Q
IC2
F245S
IC4
F245S
IC3
F244
IC5
M51953F
IC9
HCU04
IC10
LS08
IC11
LS32
IC16
HC74
IC19
LS07
IC37
HC244
IC62
LS07
IC92
HC244
TL3
TEST LAND FOR CHEAKER
TL17 TL18 TL19 TL20
TL15 TL16
TL13 TL14
TL11 TL12
TL6 TL7 TL9 TL10
OP SIZE B CN120-A11
OP SIZE A CN120-A9
CN60-B6 CASSETTE SIZE D
CN60-B5 CASSETTE SIZE C
CN60-B4 CASSETTE SIZE B
CN60-B3 CASSETTE SIZE A
CN60-B1 CASSETTE SCAN1
CN60-B2 CASSETTE SCAN2
CN120-A8 CASSETTE SCAN3
CN481-B3 RXD IP
CN481-B2 TXD IP
CN3-A7 WT SW
OPTBK_SIG
OPTREV_SIG
GAMMASIG_IN
CN5-A7 L_KEN_IN
ANALOG2
TH1_SIG
DMAXSIG_IN
ANALOG5
TH2_SIG
DRAM_JAM
16MCLK
8MCLK
FC1
FC2
GATE_245
DIR_245
G_REGCS
RW
E
/RESET
RESET1
BHE
ALE
FAI
CPU_RDY
LED1
X1
16M
ZD1
HZ5BLL-TA
DA4
MC2840
5V

CONTROL BOARD CIRCUIT DIAGRAM (2/19)


5V
C203
0.01U
AL[13:8]
A[7:1]
IC21
M48Z18
07BA-933
VCC
GND
EN
RST
WR
RD
RAM2_CS
WE
RD
R202
56K
C207
470P
/RESET
D[7:0]
NC
C208
AL[15:8]
IC28
M5M256
RAM1_CS
RD
WE
CE
OE
W
C204
AL[19:8]
(IC22:55FA8951)
27C4001
VPP
4MROM_CS
C961
IC24
DS1643
RAM2_CS
WD
RD
D[15:8]
NC1
NC2
C206
IC29
M5M256
RAM1_CS
RD
WD
C205
(IC23:55FA8952)
27C4001
4MROM_CS
RD

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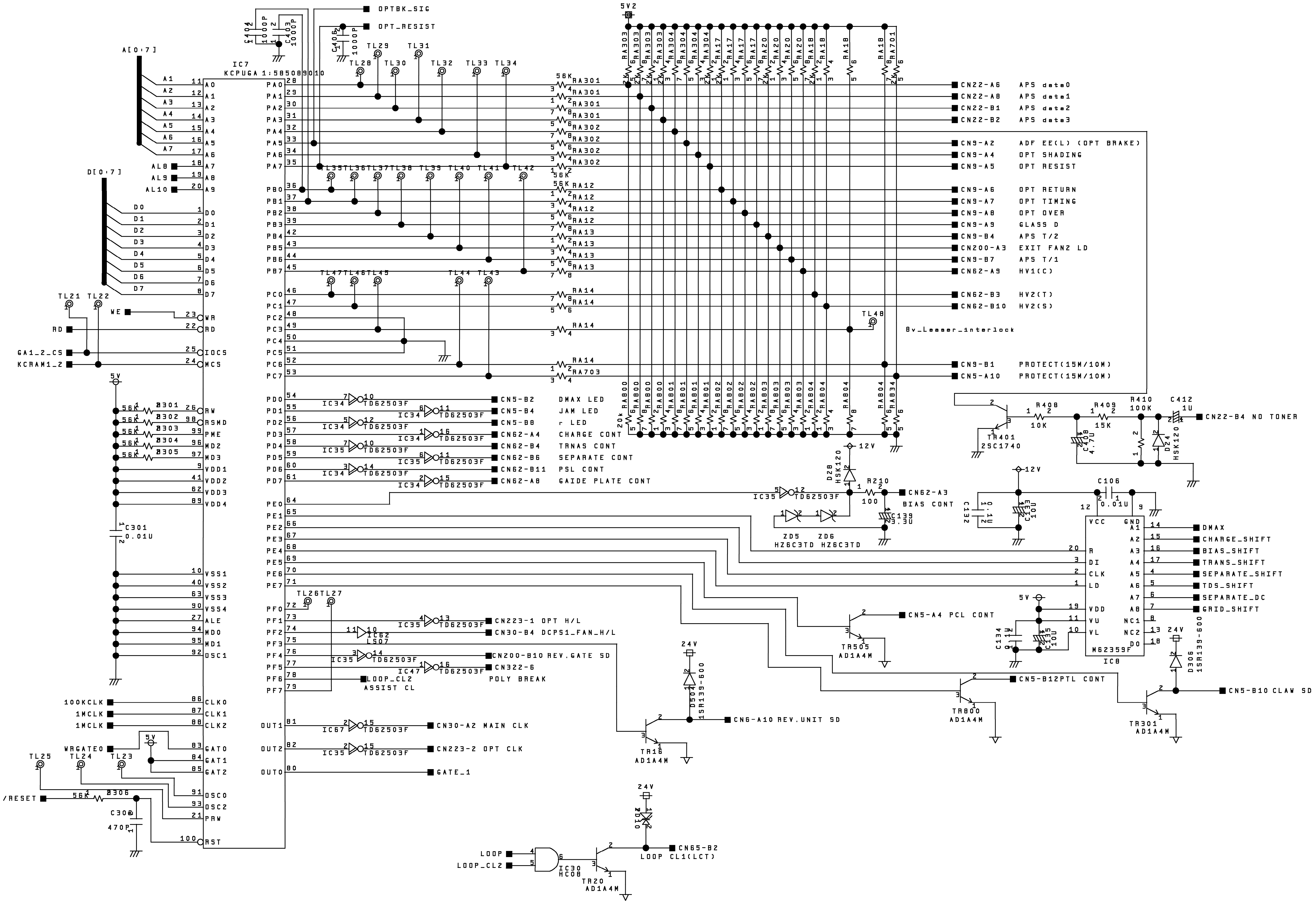
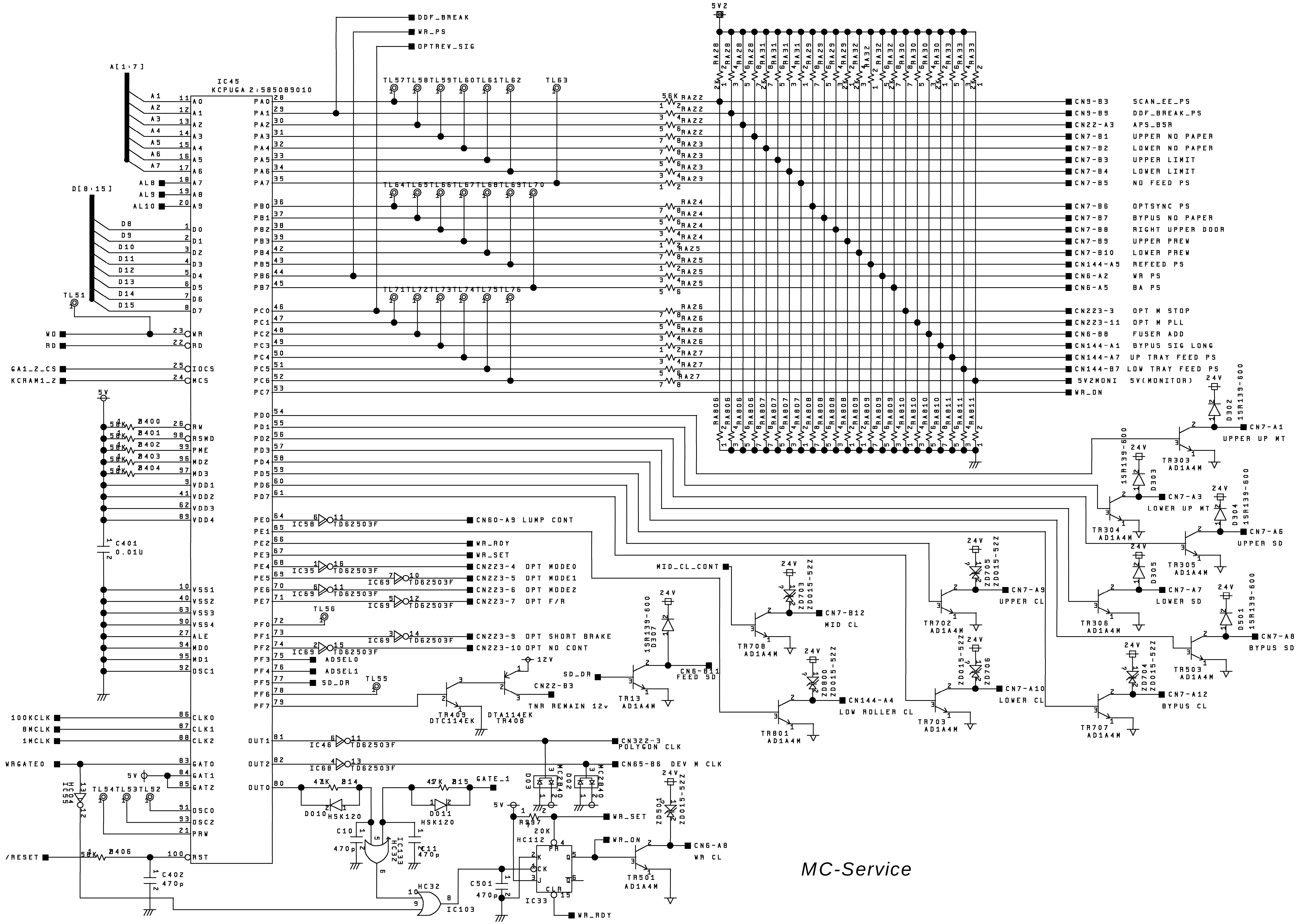
CONTROL BOARD CIRCUIT DIAGRAM (3/19)



IC7
KCPUGA 1:585089010
A[0:7]
D[0:7]
AL8
AL9
AL10
WE
RD
GA1_2_CS
KCRAM1_2
5V
C301
0.01U
100KCLK
1MCLK
1MCLK
WRGATE0
TL25
TL24
TL23
/RESET
56K
R306
C308
470P
OPTBK_SIG
OPT_RESIST
C404 1000P
C403 1000P
C405 1000P
5V2
RA301
RA302
RA12
RA13
RA14
RA703
RA800
RA801
RA802
RA803
RA804
RA834
CN22-A6 APS data0
CN22-A8 APS data1
CN22-B1 APS data2
CN22-B2 APS data3
CN9-A2 ADF EE(L) (OPT BRAKE)
CN9-A4 OPT SHADING
CN9-A5 OPT RESIST
CN9-A6 OPT RETURN
CN9-A7 OPT TIMING
CN9-A8 OPT OVER
CN9-A9 GLASS D
CN9-B4 APS T/2
CN200-A3 EXIT FAN2 LD
CN9-B7 APS T/1
CN62-A9 HV1(C)
CN62-B3 HV2(T)
CN62-B10 HV2(S)
TL48
8v_Laaser_interlock
CN9-B1 PROTECT(15M/10M)
CN5-A10 PROTECT(15M/10M)
TD62503F
CN5-B2 DMAX LED
CN5-B4 JAM LED
CN5-B8 r LED
CN62-A4 CHARGE CONT
CN62-B4 TRNAS CONT
CN62-B6 SEPARATE CONT
CN62-B11 PSL CONT
CN62-A8 GAIDE PLATE CONT
R408 10K
R409 15K
R410 100K
C412 1U
CN22-B4 NO TONER
TR401 2SC1740
C408 4.7U
D24 HSK120
D28 HSK120
R210 100
CN62-A3 BIAS CONT
C139 3.3U
ZD5 HZ6C3TD
ZD6 HZ6C3TD
12V
C132 0.1U
C133 10U
C106 0.01U
IC8 M62359F
DMAX
CHARGE_SHIFT
BIAS_SHIFT
TRANS_SHIFT
SEPARATE_SHIFT
TDS_SHIFT
SEPARATE_DC
GRID_SHIFT
C134 0.1U
C135 10U
CN5-A4 PCL CONT
TR505 AD1A4M
TR800 AD1A4M
CN5-B12PTL CONT
D306 1SR139-600
CN5-B10 CLAW SD
TR301 AD1A4M
24V
CN223-1 OPT H/L
CN30-B4 DCPS1_FAN_H/L
IC62 LS07
CN200-B10 REV.GATE SD
CN322-6 POLY BREAK
LOOP_CL2 ASSIST CL
D504 1SR139-600
CN6-A10 REV.UNIT SD
TR16 AD1A4M
CN30-A2 MAIN CLK
CN223-2 OPT CLK
GATE_1
D310
CN65-B2 LOOP CL1(LCT)
LOOP
LOOP_CL2
IC30 HC08
TR20 AD1A4M

CONTROL BOARD CIRCUIT DIAGRAM (4/19)



IC45
KCPUGA 2:585089010
A[1:7]
D[8:15]
AL8
AL9
AL10
TL51
WD
RD
GA1_2_CS
KCRAM1_2
5V
R400
R401
R402
R403
R404
56K
C401
0.01U
100KCLK
8MCLK
1MCLK
WRGATE0
HC04
TL54
TL53
TL52
/RESET
R406
C402
470p
DDF_BREAK
WR_PS
OPTREV_SIG
TL57 TL58 TL59 TL60 TL61 TL62
TL63
TL64 TL65 TL66 TL67 TL68 TL69 TL70
TL71 TL72 TL73 TL74 TL75 TL76
5V2
RA22
RA23
RA24
RA25
RA26
RA27
RA28
RA29
RA30
RA31
RA32
RA33
RA806
RA807
RA808
RA809
RA810
RA811
CN9-B3 SCAN_EE_PS
CN9-B9 DDF_BREAK_PS
CN22-A3 APS_B5R
CN7-B1 UPPER NO PAPER
CN7-B2 LOWER NO PAPER
CN7-B3 UPPER LIMIT
CN7-B4 LOWER LIMIT
CN7-B5 NO FEED PS
CN7-B6 OPTSYNC PS
CN7-B7 BYPUS NO PAPER
CN7-B8 RIGHT UPPER DOOR
CN7-B9 UPPER PREW
CN7-B10 LOWER PREW
CN144-A5 REFEED PS
CN6-A2 WR PS
CN6-A5 BA PS
CN223-3 OPT M STOP
CN223-11 OPT M PLL
CN6-B8 FUSER ADD
CN144-A1 BYPUS SIG LONG
CN144-A7 UP TRAY FEED PS
CN144-B7 LOW TRAY FEED PS
5V2MONI 5V(MONITOR)
WR_ON
IC58 TD62503F
CN60-A9 LUMP CONT
WR_RDY
WR_SET
IC35 TD62503F
IC69 TD62503F
CN223-4 OPT MODE0
CN223-5 OPT MODE1
CN223-6 OPT MODE2
CN223-7 OPT F/R
TL56
CN223-9 OPT SHORT BRAKE
CN223-10 OPT NO CONT
ADSEL0
ADSEL1
SD_DR
TL55
12V
CN22-B3
TNR REMAIN 12v
TR409 DTC114EK
DTA114EK TR408
SD_DR
CN6-B11 FEED SD
TR13 AD1A4M
15R139-600 D307
24V
MID_CL_CONT
ZD703 ZD015-5ZZ
CN7-B12 MID CL
TR708 AD1A4M
ZD800 ZD015-5ZZ
CN144-A4 LOW ROLLER CL
TR801 AD1A4M
ZD705 ZD015-5ZZ
CN7-A9 UPPER CL
TR702 AD1A4M
ZD706 ZD015-5ZZ
CN7-A10 LOWER CL
TR703 AD1A4M
D302 15R139-600
CN7-A1 UPPER UP MT
TR303 AD1A4M
D303 15R139-600
CN7-A3 LOWER UP MT
TR304 AD1A4M
D304 15R139-600
CN7-A6 UPPER SD
TR305 AD1A4M
D305
CN7-A7 LOWER SD
TR306 AD1A4M
D501 15R139-600
CN7-A8 BYPUS SD
TR503 AD1A4M
ZD704 ZD015-5ZZ
CN7-A12 BYPUS CL
TR707 AD1A4M
IC46 TD62503F
CN322-3 POLYGON CLK
IC68 TD62503F
CN65-B6 DEV M CLK
R314 47K
D010 HSK120
R315 47K
D011 HSK120
GATE_1
C10 470p
HC32 IC133
C11 470p
HC32 IC103
D00 MC2840
D02 MC2840
R557 20K
HC112 IC33
C501 470p
WR_SET
WR_ON
WR_RDY
ZD501 ZD015-5ZZ
CN6-A8 WR CL
TR501 AD1A4M

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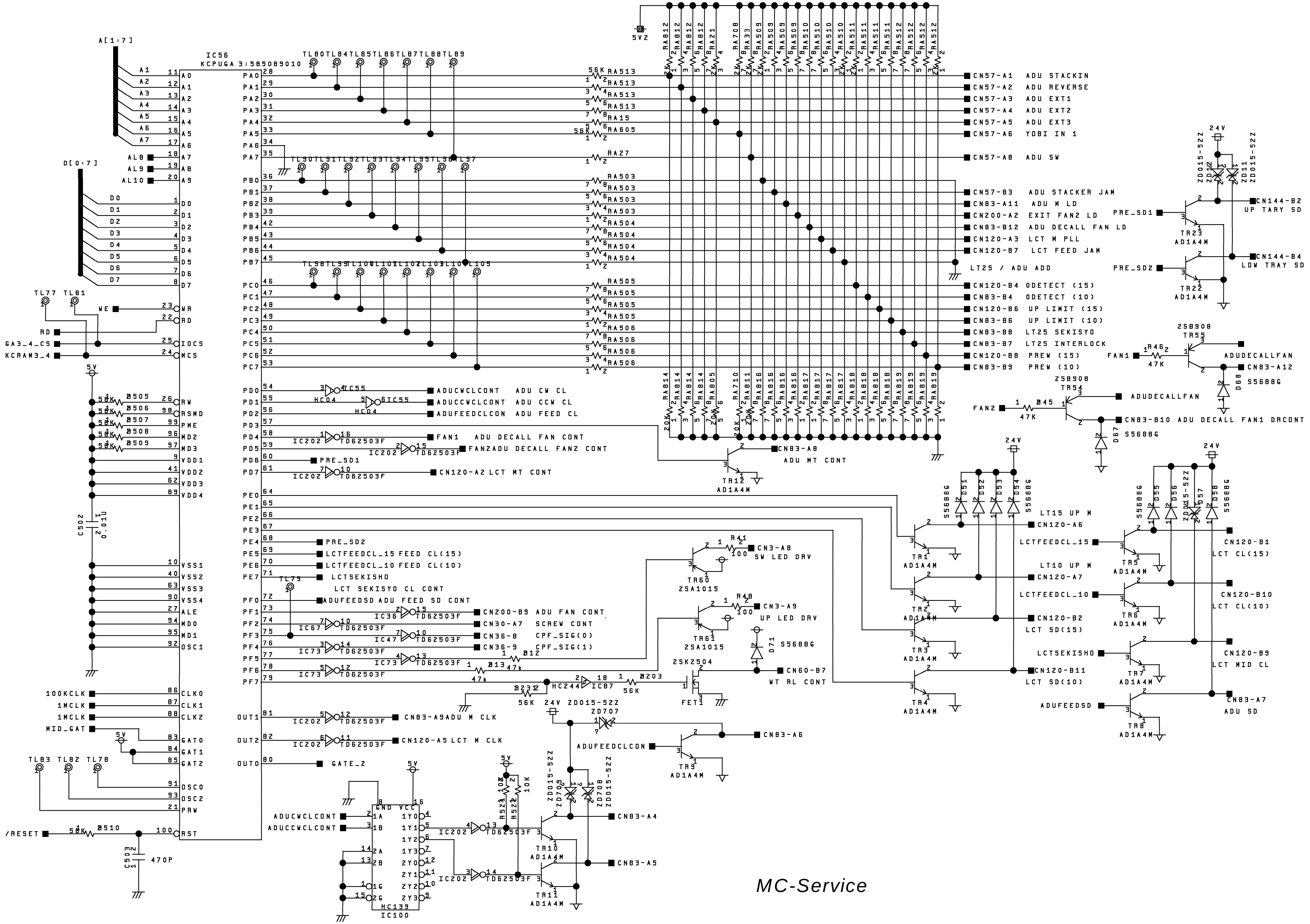
CONTROL BOARD CIRCUIT DIAGRAM (5/19)



IC56
KCPUGA 3:585089010
A[1:7]
D[0:7]
A1
A2
A3
A4
A5
A6
A7
AL8
AL9
AL10
D0
D1
D2
D3
D4
D5
D6
D7
TL77
TL81
WE
RD
GA3_4_CS
KCRAM3_4
5V
R505
R506
R507
R508
R509
56K
C502
0.01U
100KCLK
1MCLK
1MCLK
MID_GAT
TL83
TL82
TL78
/RESET
R510
C503
470P
A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
WR
RD
IDCS
MCS
RW
RSMD
PME
MD2
MD3
VDD1
VDD2
VDD3
VDD4
VSS1
VSS2
VSS3
VSS4
ALE
MD0
MD1
DSC1
CLK0
CLK1
CLK2
GAT0
GAT1
GAT2
DSC0
DSC2
PRW
RST
PA0
PA1
PA2
PA3
PA4
PA5
PA6
PA7
PB0
PB1
PB2
PB3
PB4
PB5
PB6
PB7
PC0
PC1
PC2
PC3
PC4
PC5
PC6
PC7
PD0
PD1
PD2
PD3
PD4
PD5
PD6
PD7
PE0
PE1
PE2
PE3
PE4
PE5
PE6
PE7
PF0
PF1
PF2
PF3
PF4
PF5
PF6
PF7
OUT1
OUT2
OUT0
TL80 TL84 TL85 TL86 TL87 TL88 TL89
TL90 TL91 TL92 TL93 TL94 TL95 TL96 TL97
TL98 TL99 TL100 TL101 TL102 TL103 TL104 TL105
RA513
RA15
RA605
RA27
RA503
RA504
RA505
RA506
RA812
RA21
RA708
RA33
RA509
RA510
RA511
RA512
RA814
RA805
RA710
RA811
RA816
RA817
RA818
RA819
5V2
CN57-A1 ADU STACKIN
CN57-A2 ADU REVERSE
CN57-A3 ADU EXT1
CN57-A4 ADU EXT2
CN57-A5 ADU EXT3
CN57-A6 YOBI IN 1
CN57-A8 ADU SW
CN57-B3 ADU STACKER JAM
CN83-A11 ADU M LD
CN200-A2 EXIT FAN2 LD
CN83-B12 ADU DECALL FAN LD
CN120-A3 LCT M PLL
CN120-B7 LCT FEED JAM
LT25 / ADU ADD
CN120-B4 ODETECT (15)
CN83-B4 ODETECT (10)
CN120-B6 UP LIMIT (15)
CN83-B6 UP LIMIT (10)
CN83-B8 LT25 SEKISYO
CN83-B7 LT25 INTERLOCK
CN120-B8 PREW (15)
CN83-B9 PREW (10)
IC55
HC04
ADUCWCLCONT ADU CW CL
ADUCCWCLCONT ADU CCW CL
ADUFEEDCLCON ADU FEED CL
IC202
TD62503F
FAN1 ADU DECALL FAN CONT
FAN2ADU DECALL FAN2 CONT
PRE_SD1
CN120-A2 LCT MT CONT
CN83-A8
ADU MT CONT
TR12
AD1A4M
PRE_SD2
LCTFEEDCL_15 FEED CL(15)
LCTFEEDCL_10 FEED CL(10)
TL79
LCTSEKISHO
LCT SEKISYO CL CONT
ADUFEEDSD ADU FEED SD CONT
IC36
IC67
IC47
IC73
CN200-B9 ADU FAN CONT
CN30-A7 SCREW CONT
CN36-8 CPF_SIG(0)
CN36-9 CPF_SIG(1)
R41
100
CN3-A8
SW LED DRV
TR60
2SA1015
R48
CN3-A9
UP LED DRV
TR61
2SA1015
D71
S5688G
R13
R12
47k
2SK2504
CN60-B7
WT RL CONT
R231
56K
HC244
IC87
R203
FET1
24V
ZD015-52Z
ZD707
ADUFEEDCLCON
CN83-A6
TR9
AD1A4M
CN83-A9ADU M CLK
CN120-A5 LCT M CLK
GATE_2
ADUCWCLCONT
ADUCCWCLCONT
GND VCC
1A
1B
2A
2B
1G
2G
1Y0
1Y1
1Y2
1Y3
2Y0
2Y1
2Y2
2Y3
HC139
IC100
R521
R522
10K
ZD709
ZD708
CN83-A4
CN83-A5
TR10
TR11
AD1A4M
24V
ZD015-52Z
ZD12
ZD11
PRE_SD1
TR23
AD1A4M
CN144-B2
UP TARY SD
PRE_SD2
TR22
AD1A4M
CN144-B4
LOW TRAY SD
2SB908
TR55
FAN1
R46
47K
ADUDECALLFAN
CN83-A12
D68
S5688G
2SB908
TR54
ADUDECALLFAN
FAN2
R45
47K
CN83-B10 ADU DECALL FAN1 DRCONT
D67
S5688G
24V
D51
D52
D53
D54
S5688G
LT15 UP M
CN120-A6
TR1
AD1A4M
LT10 UP M
CN120-A7
TR2
AD1A4M
CN120-B2
LCT SD(15)
TR3
AD1A4M
CN120-B11
LCT SD(10)
TR4
AD1A4M
D55
D56
D57
D58
ZD015-52Z
S5688G
LCTFEEDCL_15
TR5
AD1A4M
CN120-B1
LCT CL(15)
LCTFEEDCL_10
TR6
AD1A4M
CN120-B10
LCT CL(10)
LCTSEKISHO
TR7
AD1A4M
CN120-B9
LCT MID CL
ADUFEEDSD
TR8
AD1A4M
CN83-A7
ADU SD

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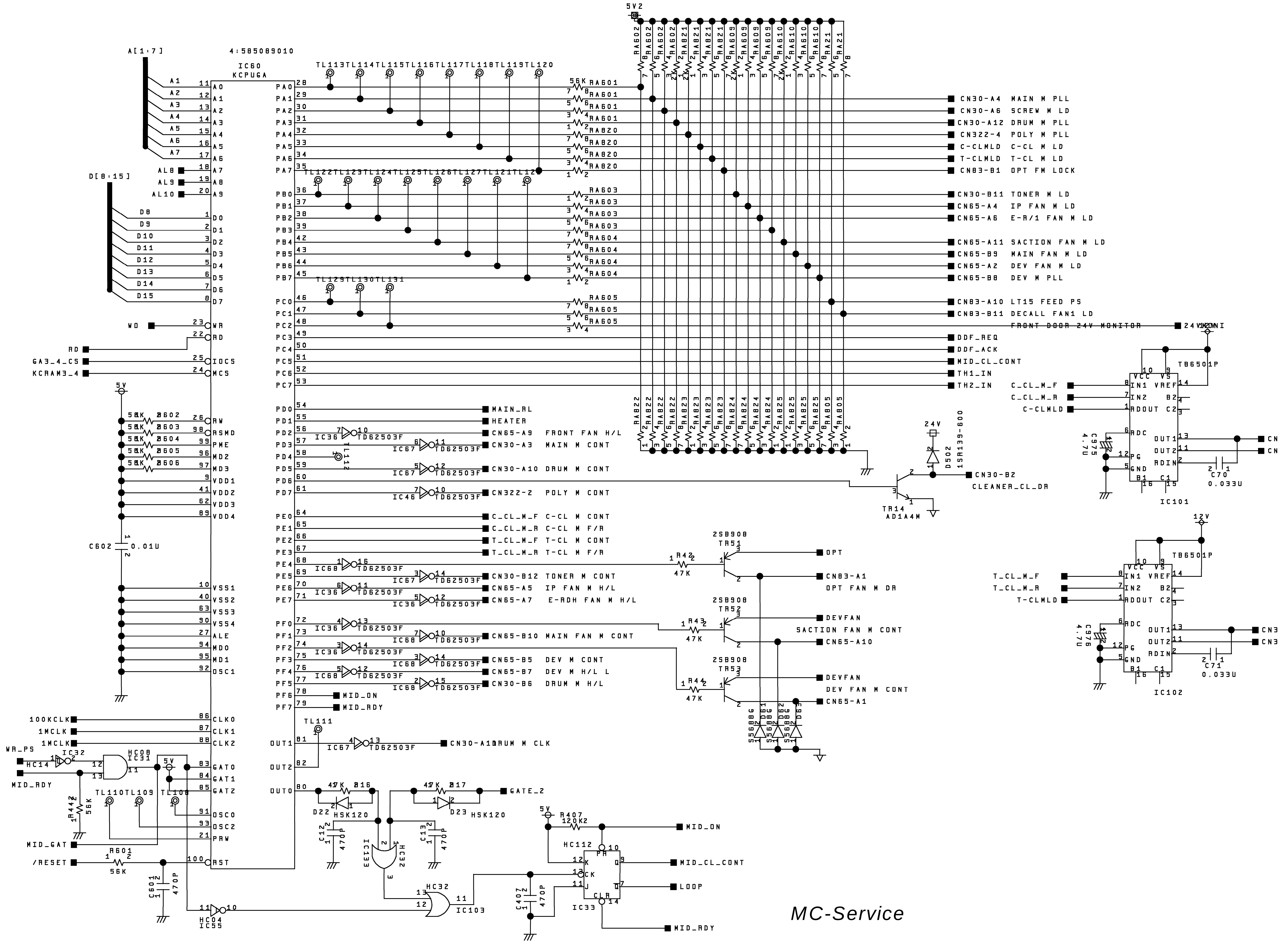
CONTROL BOARD CIRCUIT DIAGRAM (6/19)



5V2
A[1:7]
D[8:15]
4:585089010
IC60
KCPUGA
A1
A2
A3
A4
A5
A6
A7
AL8
AL9
AL10
D8
D9
D10
D11
D12
D13
D14
D15
A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
D0
D1
D2
D3
D4
D5
D6
D7
WR
RD
IOCS
MCS
RW
RSMD
PME
MD2
MD3
VDD1
VDD2
VDD3
VDD4
VSS1
VSS2
VSS3
VSS4
ALE
MD0
MD1
OSC1
CLK0
CLK1
CLK2
GAT0
GAT1
GAT2
OSC0
OSC2
PRW
RST
PA0
PA1
PA2
PA3
PA4
PA5
PA6
PA7
PB0
PB1
PB2
PB3
PB4
PB5
PB6
PB7
PC0
PC1
PC2
PC3
PC4
PC5
PC6
PC7
PD0
PD1
PD2
PD3
PD4
PD5
PD6
PD7
PE0
PE1
PE2
PE3
PE4
PE5
PE6
PE7
PF0
PF1
PF2
PF3
PF4
PF5
PF6
PF7
OUT1
OUT2
OUT0
TL113 TL114 TL115 TL116 TL117 TL118 TL119 TL120
TL122 TL123 TL124 TL125 TL126 TL127 TL121 TL12
TL129 TL130 TL131
56K
RA601
RA820
RA603
RA604
RA605
RA602
RA821
RA609
RA610
RA21
RA822
RA823
RA824
RA825
RA805
WD
RD
GA3_4_CS
KCRAM3_4
5V
56K R602
56K R603
56K R604
56K R605
56K R606
C602
0.01U
100KCLK
1MCLK
1MCLK
WR_PS
HC14
IC32
HC08
IC31
MID_RDY
R442
56K
TL110 TL109 TL108
MID_GAT
/RESET
R601
56K
C601
470P
HC04
IC55
CN30-A4 MAIN M PLL
CN30-A6 SCREW M LD
CN30-A12 DRUM M PLL
CN322-4 POLY M PLL
C-CLMLD C-CL M LD
T-CLMLD T-CL M LD
CN83-B1 OPT FM LOCK
CN30-B11 TONER M LD
CN65-A4 IP FAN M LD
CN65-A6 E-R/1 FAN M LD
CN65-A11 SACTION FAN M LD
CN65-B9 MAIN FAN M LD
CN65-A2 DEV FAN M LD
CN65-B8 DEV M PLL
CN83-A10 LT15 FEED PS
CN83-B11 DECALL FAN1 LD
FRONT DOOR 24V MONITOR
24VMONI
DDF_REQ
DDF_ACK
MID_CL_CONT
TH1_IN
TH2_IN
MAIN_RL
HEATER
IC36
TD62503F
CN65-A9 FRONT FAN H/L
IC67
CN30-A3 MAIN M CONT
TL112
CN30-A10 DRUM M CONT
IC46
CN322-2 POLY M CONT
C_CL_M_F C-CL M CONT
C_CL_M_R C-CL M F/R
T_CL_M_F T-CL M CONT
T_CL_M_R T-CL M F/R
IC68
CN30-B12 TONER M CONT
CN65-A5 IP FAN M H/L
CN65-A7 E-RDH FAN M H/L
CN65-B10 MAIN FAN M CONT
CN65-B5 DEV M CONT
CN65-B7 DEV M H/L L
CN30-B6 DRUM M H/L
MID_ON
MID_RDY
TL111
CN30-A11 DRUM M CLK
R42
47K
R43
47K
R44
47K
2SB908
TR51
TR52
TR53
OPT
CN83-A1
OPT FAN M DR
DEVFAN
SACTION FAN M CONT
CN65-A10
DEVFAN
DEV FAN M CONT
CN65-A1
D61
D62
D63
5568B
24V
D502
1SR139-600
CN30-B2
CLEANER_CL_DR
TR14
AD1A4M
12V
TB6501P
C_CL_M_F
C_CL_M_R
C-CLMLD
VCC
VS
IN1
VREF
IN2
B2
RDOUT
C2
RDC
OUT1
OUT2
PG
RDIN
GND
B1
C1
C975
4.7U
C70
0.033U
IC101
CN30-B7
CN30-B8
T_CL_M_F
T_CL_M_R
T-CLMLD
C976
4.7U
C71
0.033U
IC102
CN30-B9
CN30-B10
47K R16
D22
HSK120
47K R17
D23
HSK120
GATE_2
C12
470P
C13
470P
IC133
HC32
IC103
5V
R407
120K
HC112
PR
K
CK
J
CLR
Q
IC33
MID_ON
MID_CL_CONT
LOOP
MID_RDY
C407
470P

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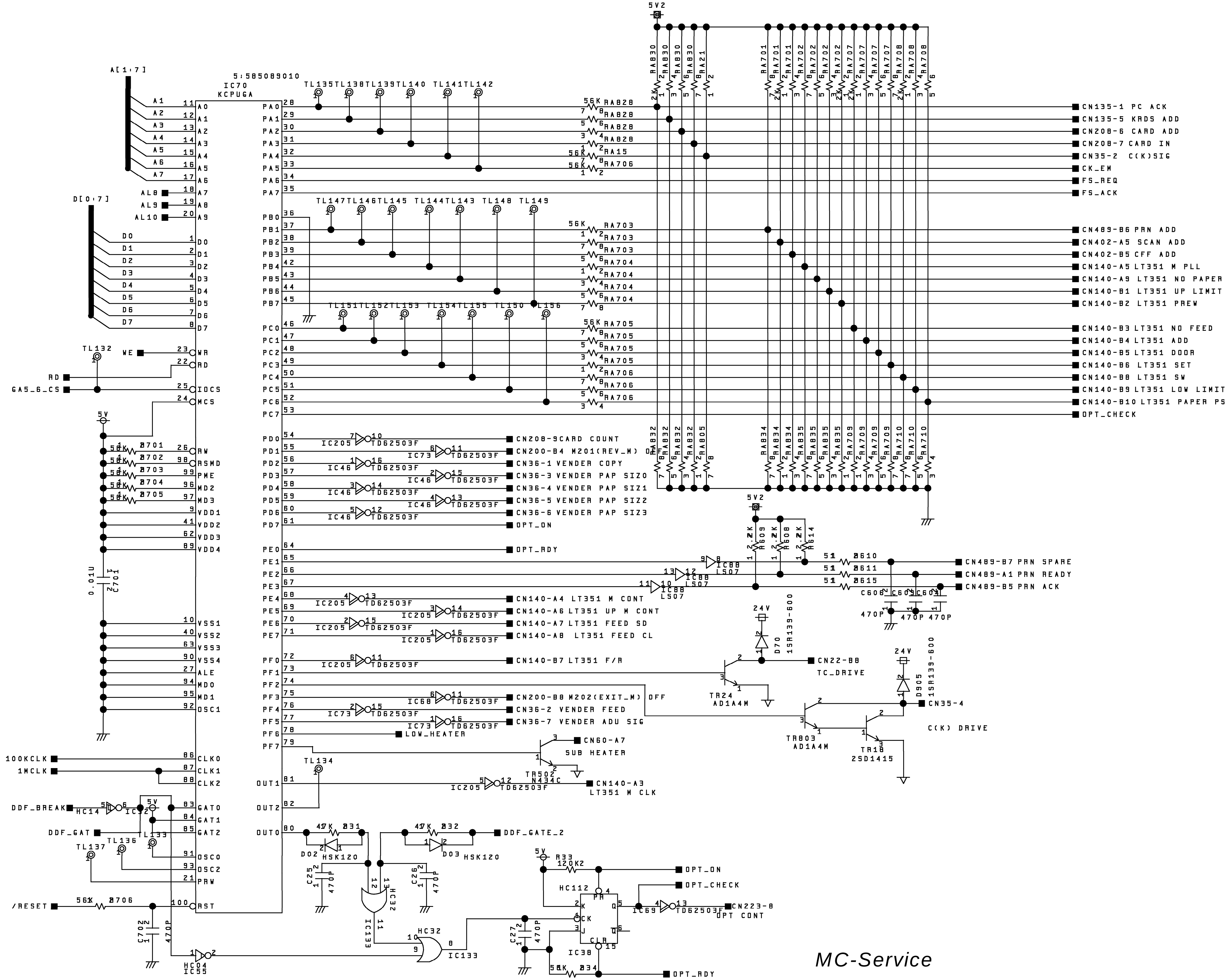
CONTROL BOARD CIRCUIT DIAGRAM (7/19)


5V2
A[1:7]
D[0:7]
5:585089010
IC70
KCPUGA
TL135 TL138 TL139 TL140 TL141 TL142
TL147 TL146 TL145 TL144 TL143 TL148 TL149
TL151 TL152 TL153 TL154 TL155 TL150 TL156
RA828 RA15 RA706 RA703 RA704 RA705 RA830 RA821 RA701 RA702 RA707 RA708 RA832 RA805 RA834 RA835 RA709 RA710
56K
CN135-1 PC ACK
CN135-5 KRDS ADD
CN208-6 CARD ADD
CN208-7 CARD IN
CN35-2 C(K)SIG
CK_EM
FS_REQ
FS_ACK
CN489-B6 PRN ADD
CN402-A5 SCAN ADD
CN402-B5 CFF ADD
CN140-A5 LT351 M PLL
CN140-A9 LT351 NO PAPER
CN140-B1 LT351 UP LIMIT
CN140-B2 LT351 PREW
CN140-B3 LT351 NO FEED
CN140-B4 LT351 ADD
CN140-B5 LT351 DOOR
CN140-B6 LT351 SET
CN140-B8 LT351 SW
CN140-B9 LT351 LOW LIMIT
CN140-B10 LT351 PAPER PS
OPT_CHECK
TL132
WE
RD
GA5_6_CS
5V
R701 R702 R703 R704 R705
0.01U
C701
CN208-9CARD COUNT
CN200-B4 M201(REV_M) OFF
CN36-1 VENDER COPY
CN36-3 VENDER PAP SIZ0
CN36-4 VENDER PAP SIZ1
CN36-5 VENDER PAP SIZ2
CN36-6 VENDER PAP SIZ3
OPT_ON
OPT_RDY
IC205 IC73 IC46 IC68 TD62503F
LS07
R609 R608 R614 2.2K
R610 R611 R615 51
CN489-B7 PRN SPARE
CN489-A1 PRN READY
CN489-B5 PRN ACK
C608 C609 C607 470P
CN140-A4 LT351 M CONT
CN140-A6 LT351 UP M CONT
CN140-A7 LT351 FEED SD
CN140-A8 LT351 FEED CL
CN140-B7 LT351 F/R
24V
D70 1SR139-600
D905 1SR139-600
CN22-B8
TC_DRIVE
TR24 AD1A4M
TR803 AD1A4M
TR18 2SD1415
CN35-4
C(K) DRIVE
CN200-B8 M202(EXIT_M) OFF
CN36-2 VENDER FEED
CN36-7 VENDER ADU SIG
LOW_HEATER
CN60-A7
SUB HEATER
TR502 N434C
CN140-A3
LT351 M CLK
100KCLK
1MCLK
TL134
DDF_BREAK
HC14 IC92
DDF_GAT
TL137 TL136 TL133
47K R31 R32
D02 HSK120
D03 HSK120
DDF_GATE_2
C25 C26 C27 470P
HC32 IC133
R33 120K
HC112 IC38
OPT_ON
OPT_CHECK
IC69
CN223-8
OPT CONT
OPT_RDY
56K R34
/RESET
56K R706
C702 470P
HC04 IC55
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9
D0 D1 D2 D3 D4 D5 D6 D7
AL8 AL9 AL10
WR RD IOCS MCS RW RSMD PME MD2 MD3 VDD1 VDD2 VDD3 VDD4 VSS1 VSS2 VSS3 VSS4 ALE MD0 MD1 OSC1 CLK0 CLK1 CLK2 GAT0 GAT1 GAT2 OSC0 OSC2 PRW RST
PA0-PA7 PB0-PB7 PC0-PC7 PD0-PD7 PE0-PE7 PF0-PF7 OUT1 OUT2 OUT0

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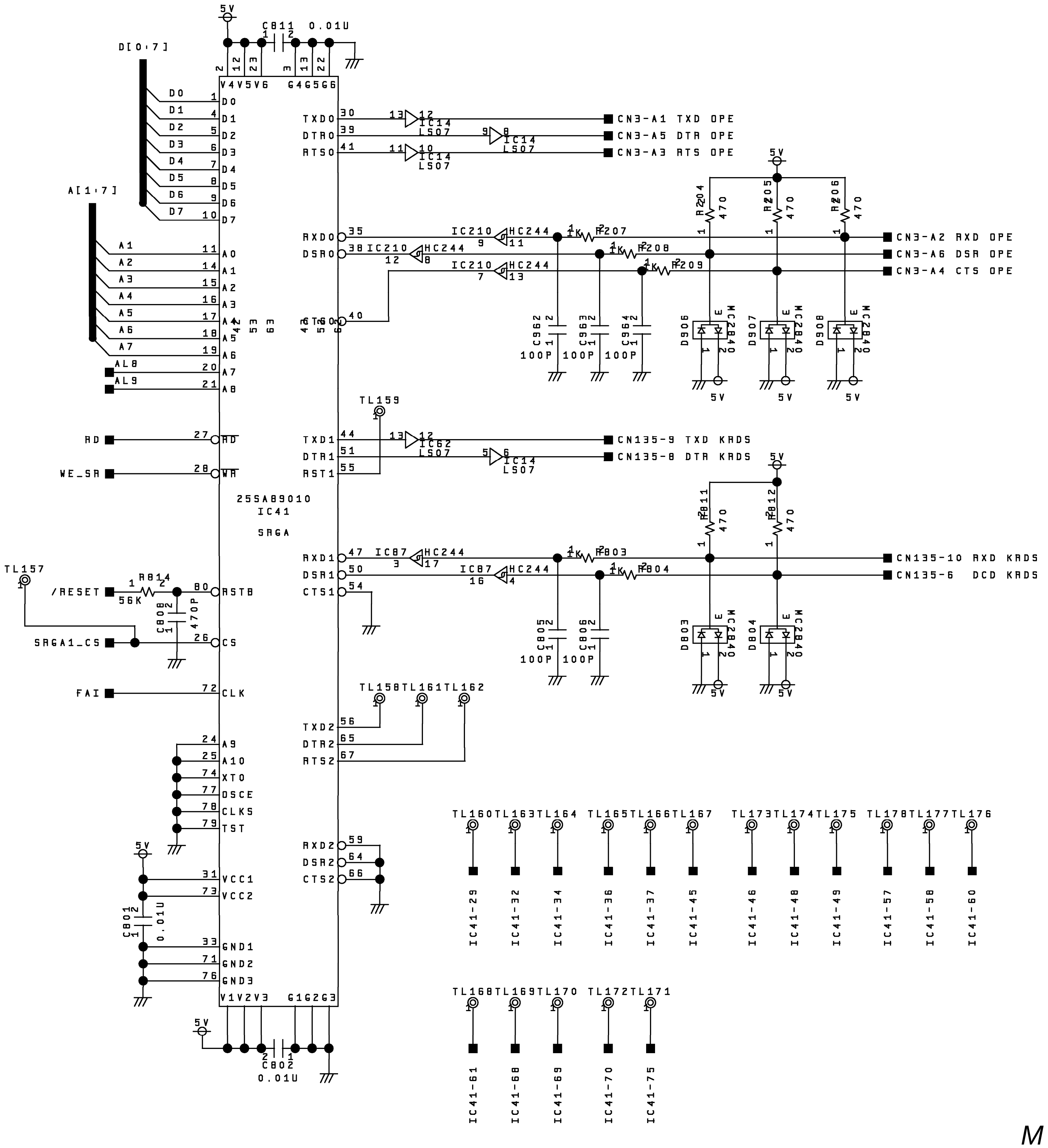
CONTROL BOARD CIRCUIT DIAGRAM (8/19)



5V
C811 0.01U
D[0:7]
A[1:7]
D0
D1
D2
D3
D4
D5
D6
D7
A1
A2
A3
A4
A5
A6
A7
AL8
AL9
RD
WE_SR
TL157
/RESET
R814
56K
C808
470P
SRGA1_CS
FAI
25SA89010
IC41
SRGA
TXD0
DTR0
RTS0
RXD0
DSR0
CTS0
TXD1
DTR1
RST1
RXD1
DSR1
CTS1
TXD2
DTR2
RTS2
RXD2
DSR2
CTS2
A9
A10
XTO
DSCE
CLKS
TST
VCC1
VCC2
GND1
GND2
GND3
C801
0.01U
C802
0.01U
IC14
LS07
IC62
IC210
HC244
IC87
R207
R208
R209
R204
R205
R206
470
1K
C962
C963
C964
100P
D906
D907
D908
MC2840
CN3-A1 TXD OPE
CN3-A5 DTR OPE
CN3-A3 RTS OPE
CN3-A2 RXD OPE
CN3-A6 DSR OPE
CN3-A4 CTS OPE
TL159
CN135-9 TXD KRDS
CN135-8 DTR KRDS
R811
R812
R803
R804
C805
C806
D803
D804
CN135-10 RXD KRDS
CN135-6 DCD KRDS
TL158
TL161
TL162
TL160
TL163
TL164
TL165
TL166
TL167
TL173
TL174
TL175
TL178
TL177
TL176
IC41-29
IC41-32
IC41-34
IC41-36
IC41-37
IC41-45
IC41-46
IC41-48
IC41-49
IC41-57
IC41-58
IC41-60
TL168
TL169
TL170
TL172
TL171
IC41-61
IC41-68
IC41-69
IC41-70
IC41-75

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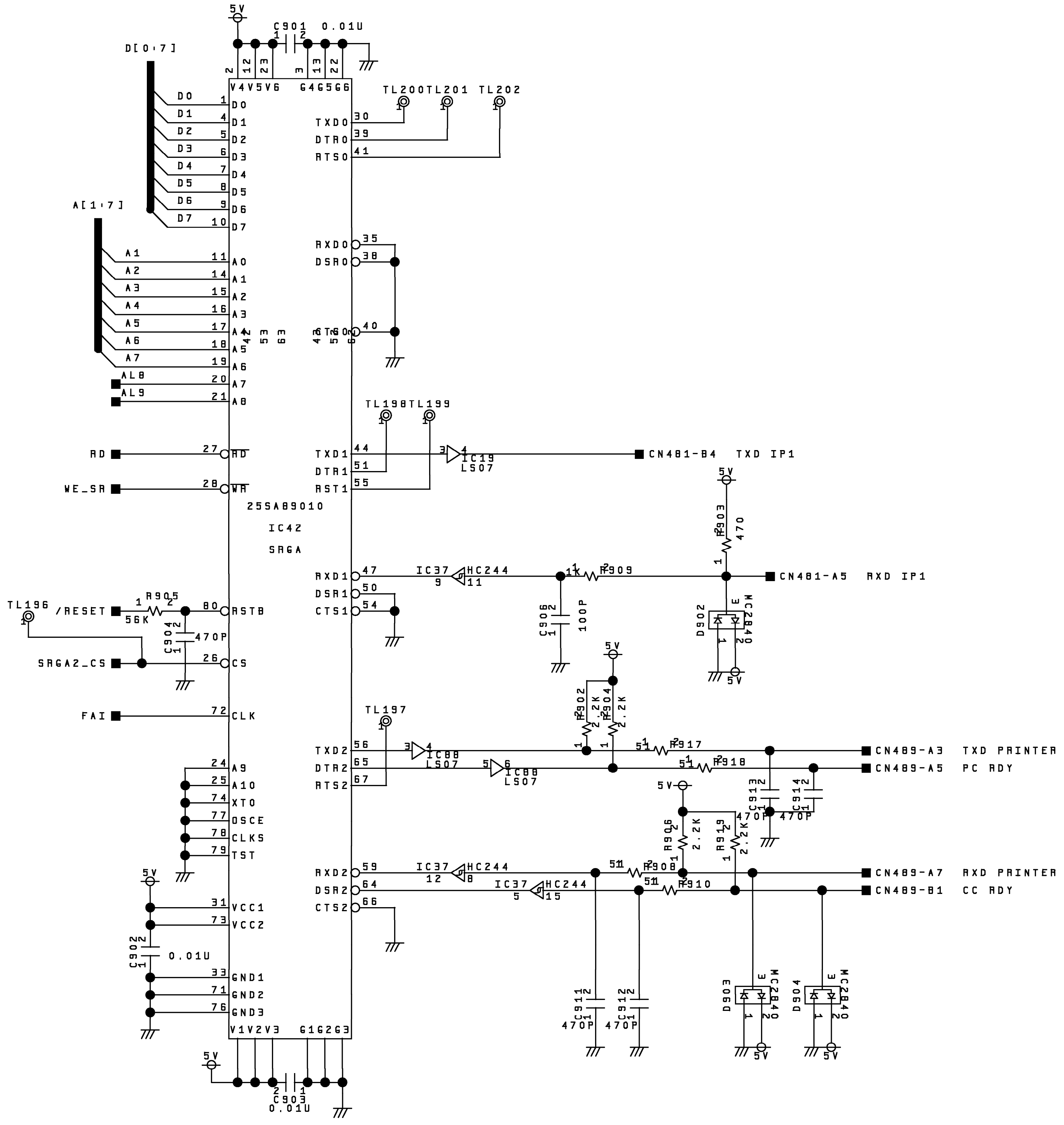
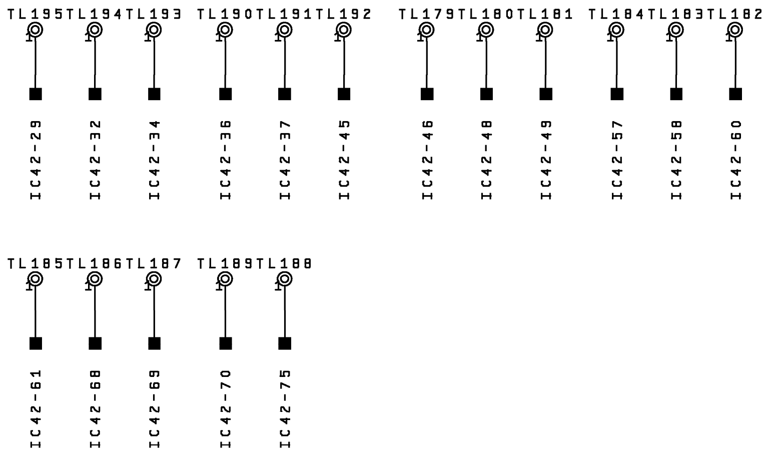
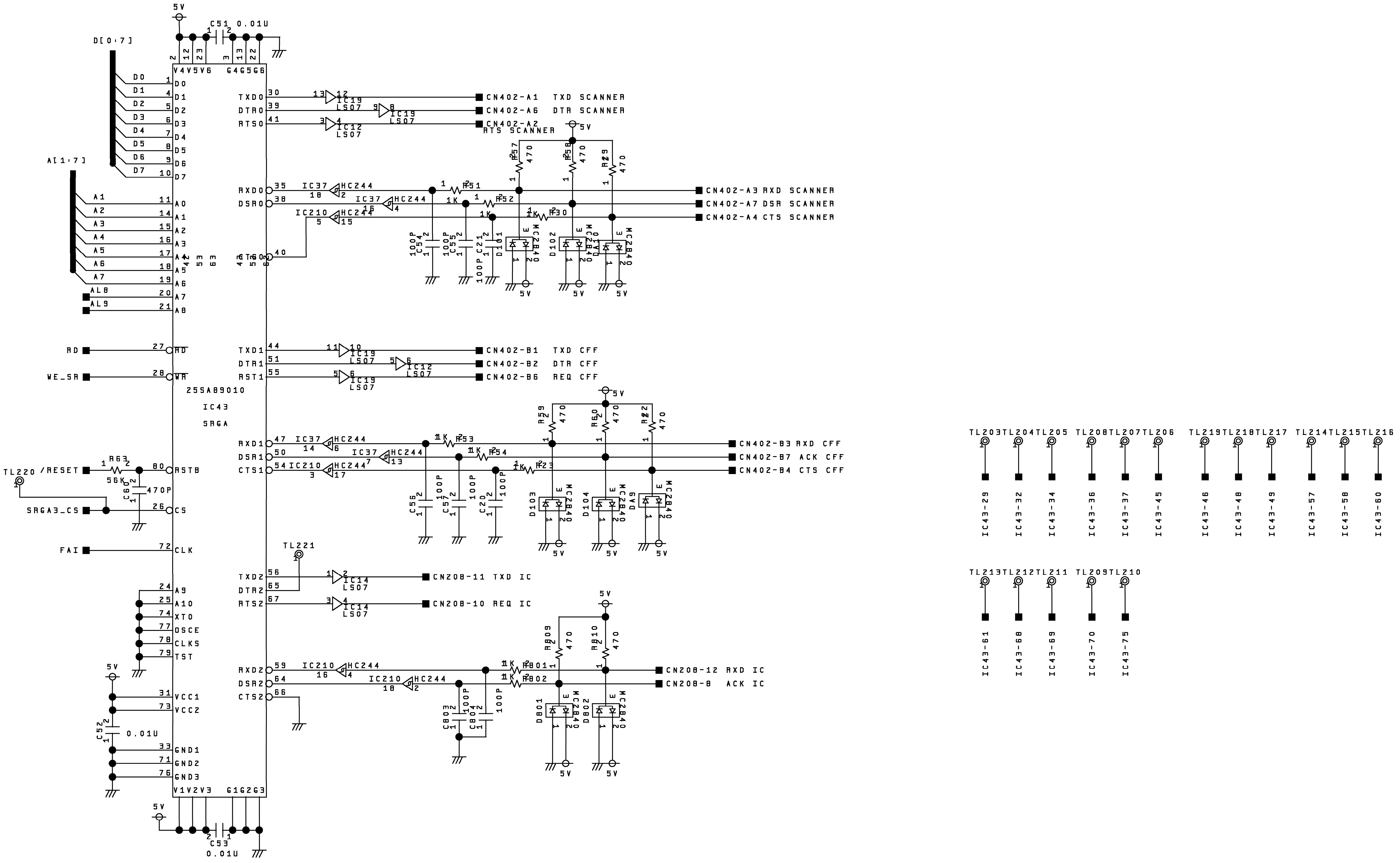
CONTROL BOARD CIRCUIT DIAGRAM (9/19)

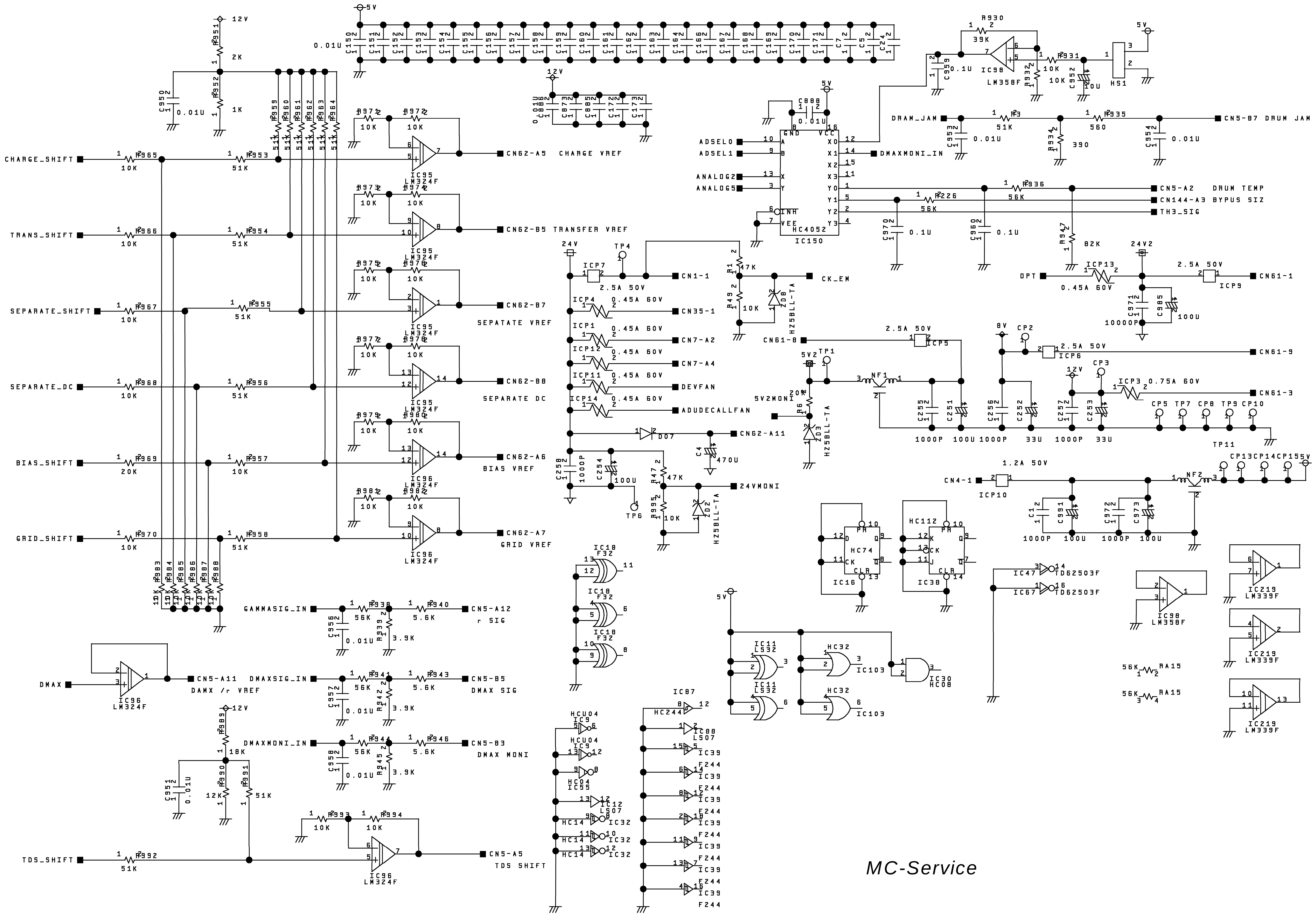

5V
C901 0.01U
D[0:7]
A[1:7]
D0
D1
D2
D3
D4
D5
D6
D7
A1
A2
A3
A4
A5
A6
A7
AL8
AL9
RD
WE_SR
TL196
/RESET
R905 56K
C904 470P
SRGA2_CS
FAI
TXD0
DTR0
RTS0
RXD0
DSR0
CTS0
TXD1
DTR1
RST1
RXD1
DSR1
CTS1
TXD2
DTR2
RTS2
RXD2
DSR2
CTS2
A9
A10
XTO
OSCE
CLKS
TST
VCC1
VCC2
GND1
GND2
GND3
C902 0.01U
C903 0.01U
25SA89010
IC42
SRGA
TL200
TL201
TL202
TL198
TL199
TL197
IC19 LS07
CN481-B4 TXD IP1
R903 470
IC37 HC244
R909 1K
C906 100P
CN481-A5 RXD IP1
D902 MC2840
R902 2.2K
R904 2.2K
IC88 LS07
R917 51
R918 51
C913 470P
C914 470P
CN489-A3 TXD PRINTER
CN489-A5 PC RDY
R906 2.2K
R919 2.2K
R908 51
R910 51
CN489-A7 RXD PRINTER
CN489-B1 CC RDY
C911 470P
C912 470P
D903 MC2840
D904 MC2840


TL195
TL194
TL193
TL190
TL191
TL192
TL179
TL180
TL181
TL184
TL183
TL182
IC42-29
IC42-32
IC42-34
IC42-36
IC42-37
IC42-45
IC42-46
IC42-48
IC42-49
IC42-57
IC42-58
IC42-60
TL185
TL186
TL187
TL189
TL188
IC42-61
IC42-68
IC42-69
IC42-70
IC42-75

CONTROL BOARD CIRCUIT DIAGRAM (10/19)


5V
C51 0.01U
D[0:7]
A[1:7]
D0
D1
D2
D3
D4
D5
D6
D7
A1
A2
A3
A4
A5
A6
A7
AL8
AL9
RD
WE_SR
/RESET
TL220
R63
56K
C60
470P
SRGA3_CS
FAI
25SA89010
IC43
SRGA
TXD0
DTR0
RTS0
RXD0
DSR0
CTS0
TXD1
DTR1
RST1
RXD1
DSR1
CTS1
TXD2
DTR2
RTS2
RXD2
DSR2
CTS2
RSTB
CS
CLK
A9
A10
XTO
OSCE
CLKS
TST
VCC1
VCC2
GND1
GND2
GND3
C52 0.01U
C53 0.01U
IC19 LS07
IC12 LS07
IC14 LS07
IC37 HC244
IC210 HC244
R51
R52
R30
R53
R54
R23
R801
R802
R57 470
R58 470
R29 470
R59 470
R60 470
R22 470
R809 470
R810 470
C54 100P
C55 100P
C21 100P
C56 100P
C57 100P
C20 100P
C803 100P
C804 100P
D101
D102
D103
D104
D801
D802
MC2840
CN402-A1 TXD SCANNER
CN402-A6 DTR SCANNER
CN402-A2 RTS SCANNER
CN402-A3 RXD SCANNER
CN402-A7 DSR SCANNER
CN402-A4 CTS SCANNER
CN402-B1 TXD CFF
CN402-B2 DTR CFF
CN402-B6 REQ CFF
CN402-B3 RXD CFF
CN402-B7 ACK CFF
CN402-B4 CTS CFF
CN208-11 TXD IC
CN208-10 REQ IC
CN208-12 RXD IC
CN208-8 ACK IC
TL221
TL203 TL204 TL205 TL208 TL207 TL206 TL219 TL218 TL217 TL214 TL215 TL216
IC43-29 IC43-32 IC43-34 IC43-36 IC43-37 IC43-45 IC43-46 IC43-48 IC43-49 IC43-57 IC43-58 IC43-60
TL213 TL212 TL211 TL209 TL210
IC43-61 IC43-68 IC43-69 IC43-70 IC43-75

CONTROL BOARD CIRCUIT DIAGRAM (11/19)



5V
12V
R951
2K
R952
1K
C950
0.01U
0.01U
C150
C151
C152
C153
C154
C155
C156
C157
C158
C159
C160
C161
C162
C163
C164
C166
C167
C168
C169
C170
C171
C7
C5
C24
C886
C873
C885
C172
C173
R959
R960
R961
R962
R963
R964
51K
R971
R972
10K
R930
39K
IC98
LM358F
R931
R932
C952
C959
0.1U
10U
HS1
C888
0.01U
CHARGE_SHIFT
R965
10K
R953
51K
IC95
LM324F
CN62-A5
CHARGE VREF
TRANS_SHIFT
R966
R954
R973
R974
CN62-B5
TRANSFER VREF
SEPARATE_SHIFT
R967
R955
R975
R976
CN62-B7
SEPATATE VREF
SEPARATE_DC
R968
R956
R977
R978
CN62-B8
SEPARATE DC
BIAS_SHIFT
R969
20K
R957
R979
R980
IC96
CN62-A6
BIAS VREF
GRID_SHIFT
R970
R958
R981
R982
CN62-A7
GRID VREF
R983
R984
R985
R986
R987
R988
ADSEL0
ADSEL1
ANALOG2
ANALOG5
GND
VCC
INH
VEE
HC4052
IC150
DMAXMONI_IN
DRAM_JAM
R3
R935
C953
R934
390
C954
560
CN5-B7 DRUM JAM
R936
R226
56K
CN5-A2
DRUM TEMP
CN144-A3
BYPUS SIZ
TH3_SIG
C970
C960
R947
82K
24V
TP4
ICP7
2.5A 50V
CN1-1
R1
47K
R49
10K
ZD8
HZ5BLL-TA
CK_EM
ICP4
0.45A 60V
CN35-1
ICP1
CN7-A2
ICP12
CN7-A4
ICP11
DEVFAN
ICP14
ADUDECALLFAN
D07
C4
470U
CN62-A11
C258
1000P
C254
100U
TP6
R47
R995
ZD2
24VMONI
OPT
ICP13
0.45A 60V
24V2
ICP9
CN61-1
C971
C985
10000P
100U
CN61-8
ICP5
8V
CP2
ICP6
CN61-9
5V2
TP1
NF1
5V2MONI
R6
ZD3
HZ5BLL-TA
C255
C251
C256
C252
C257
C253
12V
CP3
ICP3
0.75A 60V
CN61-3
CP5
TP7
CP8
TP9
CP10
1000P
33U
TP11
CN4-1
ICP10
1.2A 50V
NF2
CP13
CP14
CP15
C1
C991
C972
C973
IC18
F32
HC74
IC16
HC112
IC38
PR
CLR
IC47
IC67
TD62503F
IC219
LM339F
RA15
GAMMASIG_IN
R938
R939
R940
C956
5.6K
3.9K
CN5-A12
r SIG
DMAX
CN5-A11
DAMX /r VREF
DMAXSIG_IN
R941
R942
R943
C957
CN5-B5
DMAX SIG
R989
18K
R990
12K
R991
C951
DMAXMONI_IN
R944
R945
R946
C958
CN5-B3
DMAX MONI
R993
R994
TDS_SHIFT
R992
CN5-A5
TDS SHIFT
HCU04
IC9
HC04
IC55
IC12
LS07
HC14
IC32
IC87
HC244
IC88
IC39
F244
IC11
LS32
HC32
IC103
IC30
HC08

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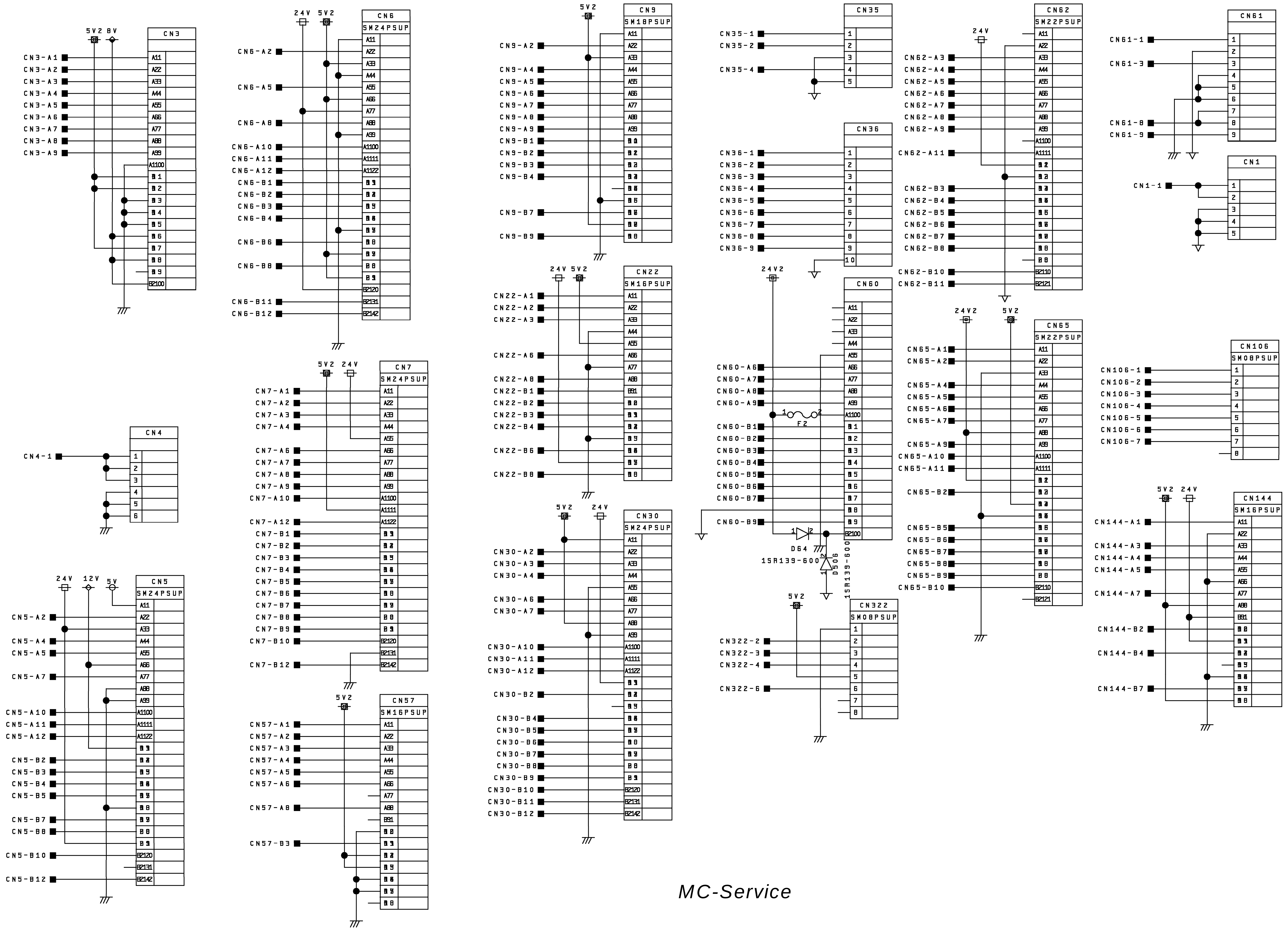
CONTROL BOARD CIRCUIT DIAGRAM (12/19)


5V2
8V
CN3
CN3-A1
CN3-A2
CN3-A3
CN3-A4
CN3-A5
CN3-A6
CN3-A7
CN3-A8
CN3-A9
24V
5V2
CN6
SM24PSUP
CN6-A2
CN6-A5
CN6-A8
CN6-A10
CN6-A11
CN6-A12
CN6-B1
CN6-B2
CN6-B3
CN6-B4
CN6-B6
CN6-B8
CN6-B11
CN6-B12
5V2
CN9
SM18PSUP
CN9-A2
CN9-A4
CN9-A5
CN9-A6
CN9-A7
CN9-A8
CN9-A9
CN9-B1
CN9-B2
CN9-B3
CN9-B4
CN9-B7
CN9-B9
CN35
CN35-1
CN35-2
CN35-4
CN36
CN36-1
CN36-2
CN36-3
CN36-4
CN36-5
CN36-6
CN36-7
CN36-8
CN36-9
24V
CN62
SM22PSUP
CN62-A3
CN62-A4
CN62-A5
CN62-A6
CN62-A7
CN62-A8
CN62-A9
CN62-A11
CN62-B3
CN62-B4
CN62-B5
CN62-B6
CN62-B7
CN62-B8
CN62-B10
CN62-B11
CN61
CN61-1
CN61-3
CN61-8
CN61-9
CN1
CN1-1
CN4
CN4-1
5V2
24V
CN7
SM24PSUP
CN7-A1
CN7-A2
CN7-A3
CN7-A4
CN7-A6
CN7-A7
CN7-A8
CN7-A9
CN7-A10
CN7-A12
CN7-B1
CN7-B2
CN7-B3
CN7-B4
CN7-B5
CN7-B6
CN7-B7
CN7-B8
CN7-B9
CN7-B10
CN7-B12
24V
5V2
CN22
SM16PSUP
CN22-A1
CN22-A2
CN22-A3
CN22-A6
CN22-A8
CN22-B1
CN22-B2
CN22-B3
CN22-B4
CN22-B6
CN22-B8
24V2
CN60
CN60-A6
CN60-A7
CN60-A8
CN60-A9
CN60-B1
CN60-B2
CN60-B3
CN60-B4
CN60-B5
CN60-B6
CN60-B7
CN60-B9
F2
D64
1SR139-600
D506
1SR139-600
24V
5V2
CN65
SM22PSUP
CN65-A1
CN65-A2
CN65-A4
CN65-A5
CN65-A6
CN65-A7
CN65-A9
CN65-A10
CN65-A11
CN65-B2
CN65-B5
CN65-B6
CN65-B7
CN65-B8
CN65-B9
CN65-B10
CN106
SM08PSUP
CN106-1
CN106-2
CN106-3
CN106-4
CN106-5
CN106-6
CN106-7
5V2
24V
CN144
SM16PSUP
CN144-A1
CN144-A3
CN144-A4
CN144-A5
CN144-A7
CN144-B2
CN144-B4
CN144-B7
24V
12V
5V
CN5
SM24PSUP
CN5-A2
CN5-A4
CN5-A5
CN5-A7
CN5-A10
CN5-A11
CN5-A12
CN5-B2
CN5-B3
CN5-B4
CN5-B5
CN5-B7
CN5-B8
CN5-B10
CN5-B12
5V2
CN57
SM16PSUP
CN57-A1
CN57-A2
CN57-A3
CN57-A4
CN57-A5
CN57-A6
CN57-A8
CN57-B3
5V2
24V
CN30
SM24PSUP
CN30-A2
CN30-A3
CN30-A4
CN30-A6
CN30-A7
CN30-A10
CN30-A11
CN30-A12
CN30-B2
CN30-B4
CN30-B5
CN30-B6
CN30-B7
CN30-B8
CN30-B9
CN30-B10
CN30-B11
CN30-B12
5V2
CN322
SM08PSUP
CN322-2
CN322-3
CN322-4
CN322-6

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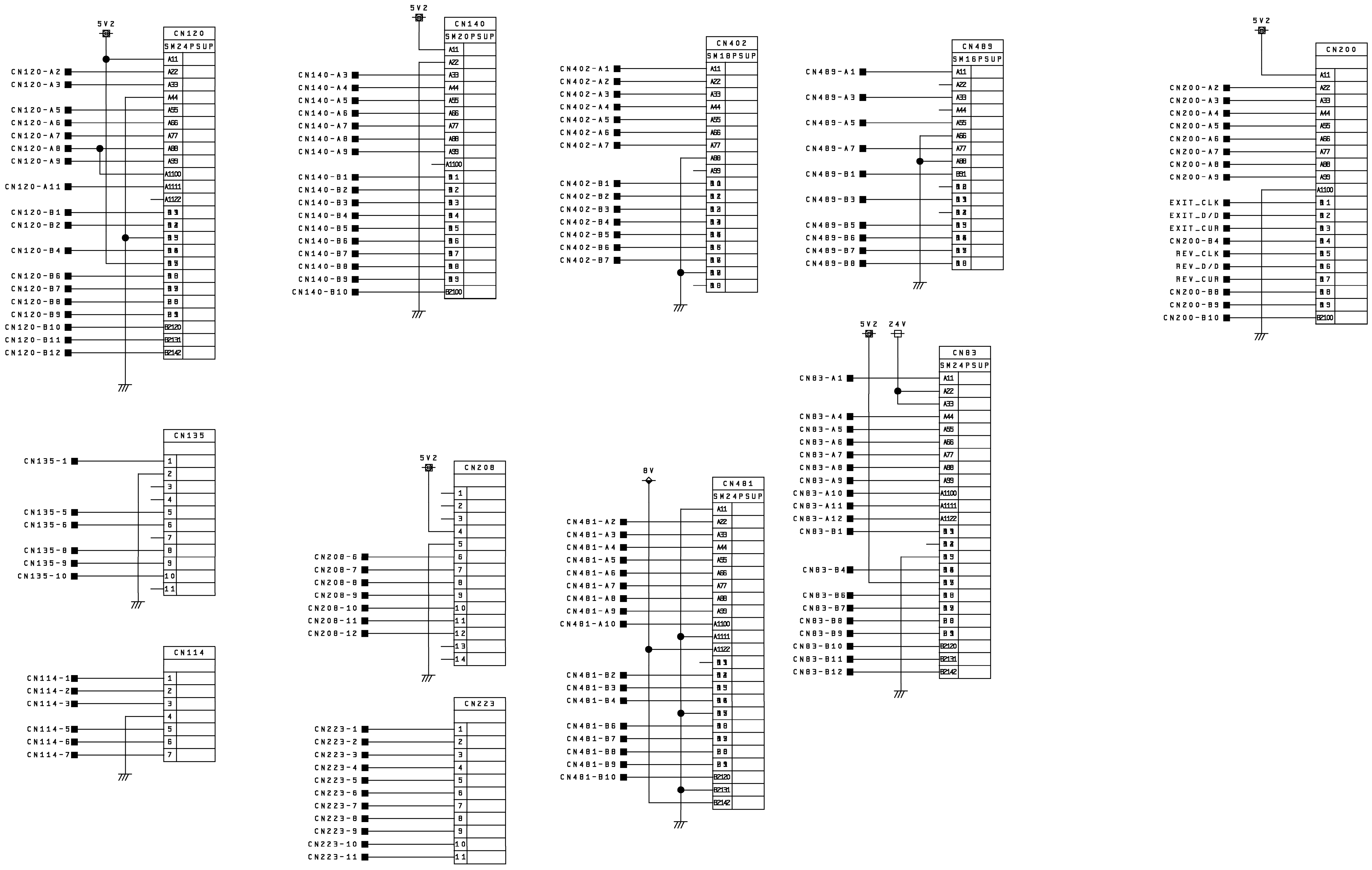
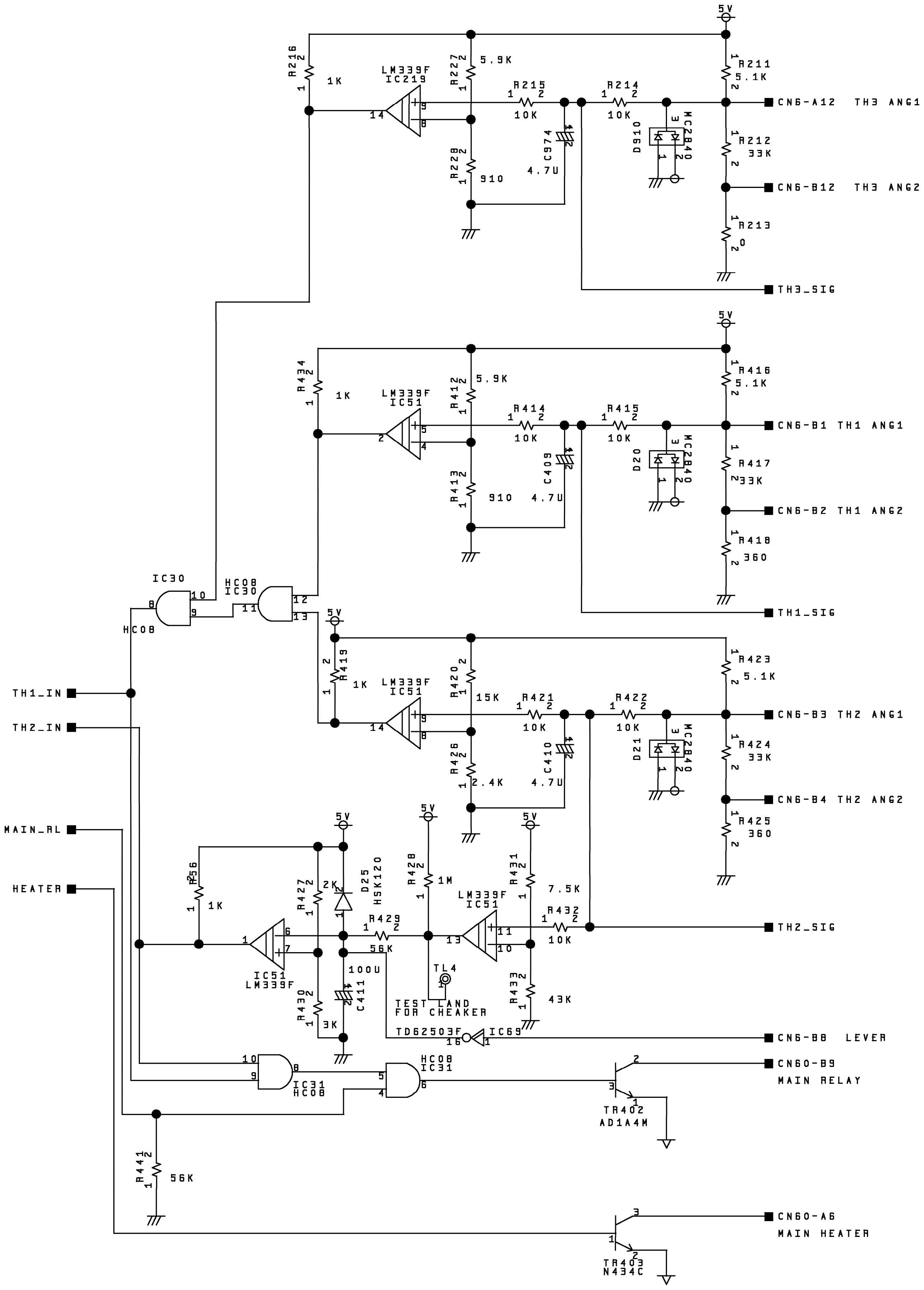
CONTROL BOARD CIRCUIT DIAGRAM (13/19)

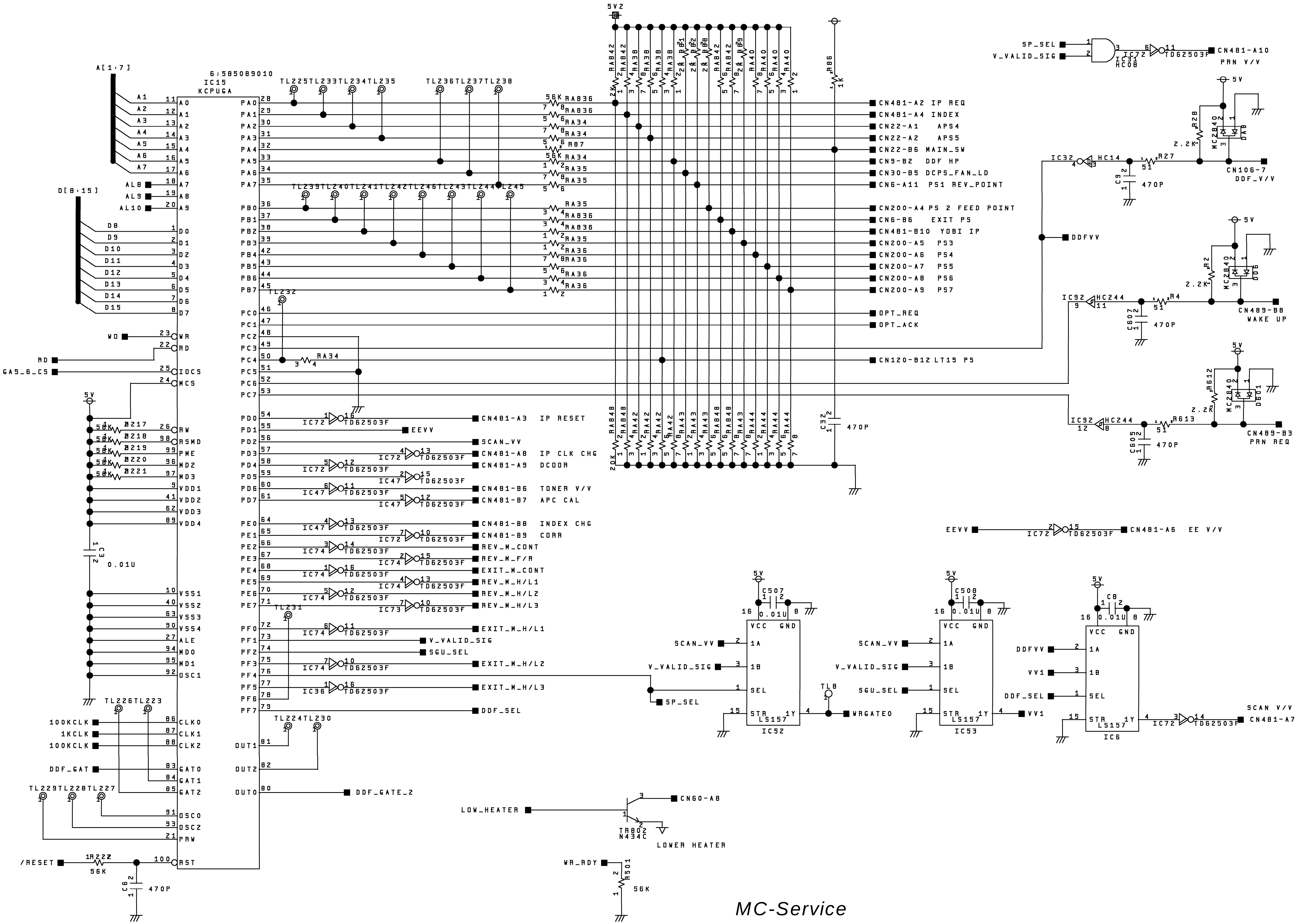

5V2
CN120
SM24PSUP
CN120-A2
CN120-A3
CN120-A5
CN120-A6
CN120-A7
CN120-A8
CN120-A9
CN120-A11
CN120-B1
CN120-B2
CN120-B4
CN120-B6
CN120-B7
CN120-B8
CN120-B9
CN120-B10
CN120-B11
CN120-B12
CN140
SM20PSUP
CN140-A3
CN140-A4
CN140-A5
CN140-A6
CN140-A7
CN140-A8
CN140-A9
CN140-B1
CN140-B2
CN140-B3
CN140-B4
CN140-B5
CN140-B6
CN140-B7
CN140-B8
CN140-B9
CN140-B10
CN402
SM18PSUP
CN402-A1
CN402-A2
CN402-A3
CN402-A4
CN402-A5
CN402-A6
CN402-A7
CN402-B1
CN402-B2
CN402-B3
CN402-B4
CN402-B5
CN402-B6
CN402-B7
CN489
SM16PSUP
CN489-A1
CN489-A3
CN489-A5
CN489-A7
CN489-B1
CN489-B3
CN489-B5
CN489-B6
CN489-B7
CN489-B8
CN200
CN200-A2
CN200-A3
CN200-A4
CN200-A5
CN200-A6
CN200-A7
CN200-A8
CN200-A9
EXIT_CLK
EXIT_D/D
EXIT_CUR
CN200-B4
REV_CLK
REV_D/D
REV_CUR
CN200-B8
CN200-B9
CN200-B10
5V2
24V
CN83
SM24PSUP
CN83-A1
CN83-A4
CN83-A5
CN83-A6
CN83-A7
CN83-A8
CN83-A9
CN83-A10
CN83-A11
CN83-A12
CN83-B1
CN83-B4
CN83-B6
CN83-B7
CN83-B8
CN83-B9
CN83-B10
CN83-B11
CN83-B12
CN135
CN135-1
CN135-5
CN135-6
CN135-8
CN135-9
CN135-10
CN208
CN208-6
CN208-7
CN208-8
CN208-9
CN208-10
CN208-11
CN208-12
8V
CN481
SM24PSUP
CN481-A2
CN481-A3
CN481-A4
CN481-A5
CN481-A6
CN481-A7
CN481-A8
CN481-A9
CN481-A10
CN481-B2
CN481-B3
CN481-B4
CN481-B6
CN481-B7
CN481-B8
CN481-B9
CN481-B10
CN114
CN114-1
CN114-2
CN114-3
CN114-5
CN114-6
CN114-7
CN223
CN223-1
CN223-2
CN223-3
CN223-4
CN223-5
CN223-6
CN223-7
CN223-8
CN223-9
CN223-10
CN223-11

CONTROL BOARD CIRCUIT DIAGRAM (14/19)



5V
R216 1K
LM339F IC219
R227 5.9K
R215 10K
R214 10K
R211 5.1K
CN6-A12 TH3 ANG1
D910
MC2840
C974 4.7U
R228 910
R212 33K
CN6-B12 TH3 ANG2
R213 0
TH3_SIG
R434 1K
LM339F IC51
R412 5.9K
R414 10K
R415 10K
R416 5.1K
CN6-B1 TH1 ANG1
D20
C409 4.7U
R413 910
R417 33K
CN6-B2 TH1 ANG2
R418 360
TH1_SIG
IC30
HC08
R419 1K
R420 15K
R421 10K
R422 10K
R423 5.1K
CN6-B3 TH2 ANG1
D21
C410 4.7U
R426 2.4K
R424 33K
CN6-B4 TH2 ANG2
R425 360
TH1_IN
TH2_IN
MAIN_RL
HEATER
R56 1K
R427 2K
D25 HSK120
R428 1M
R431 7.5K
R429 56K
R432 10K
TH2_SIG
IC51 LM339F
C411 100U
TL4
TEST LAND FOR CHEAKER
R430 3K
R433 43K
TD62503F IC69
CN6-B8 LEVER
IC31 HC08
CN60-B9 MAIN RELAY
TR402 AD1A4M
R441 56K
CN60-A6 MAIN HEATER
TR403 N434C

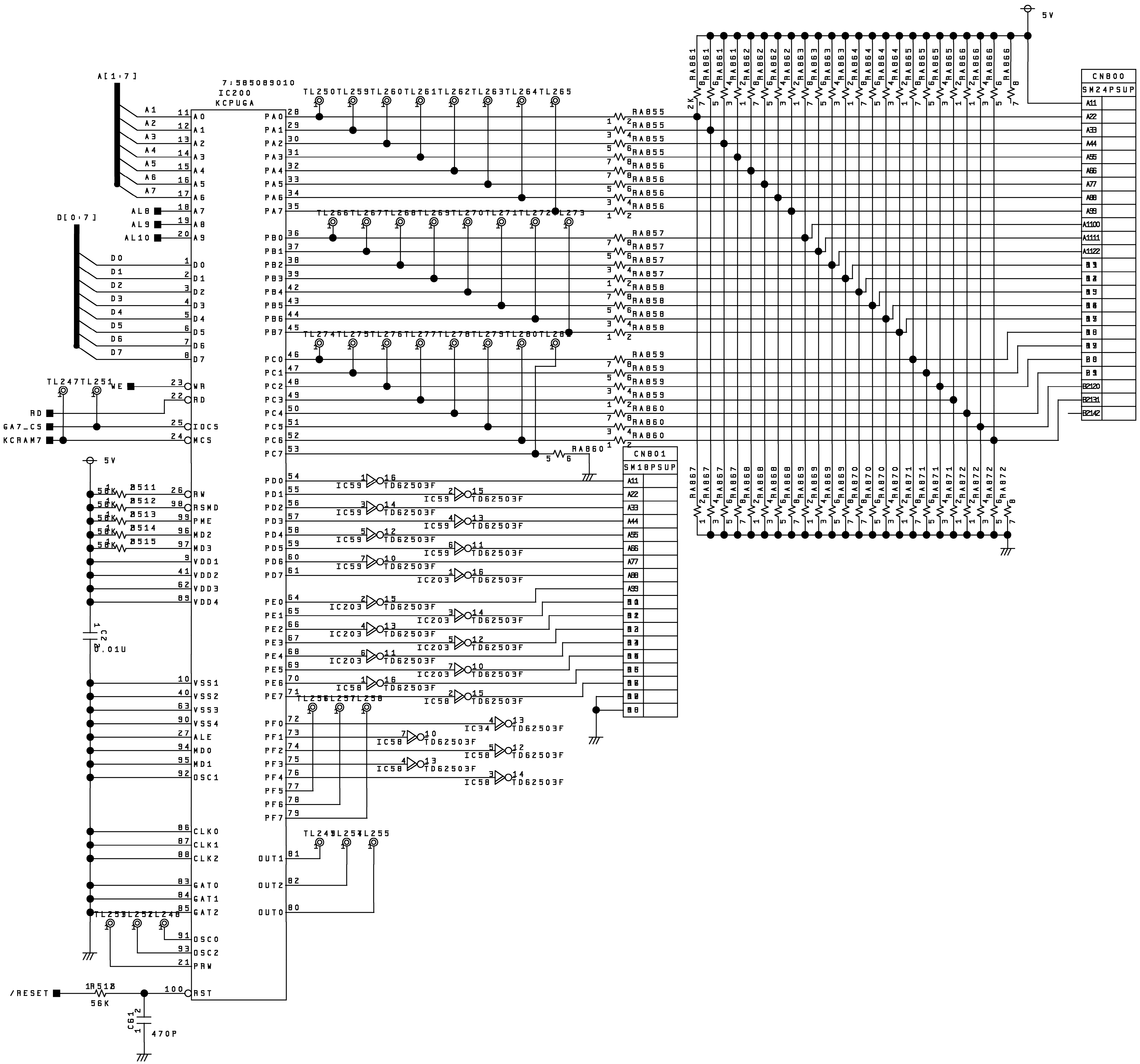
CONTROL BOARD CIRCUIT DIAGRAM (15/19)



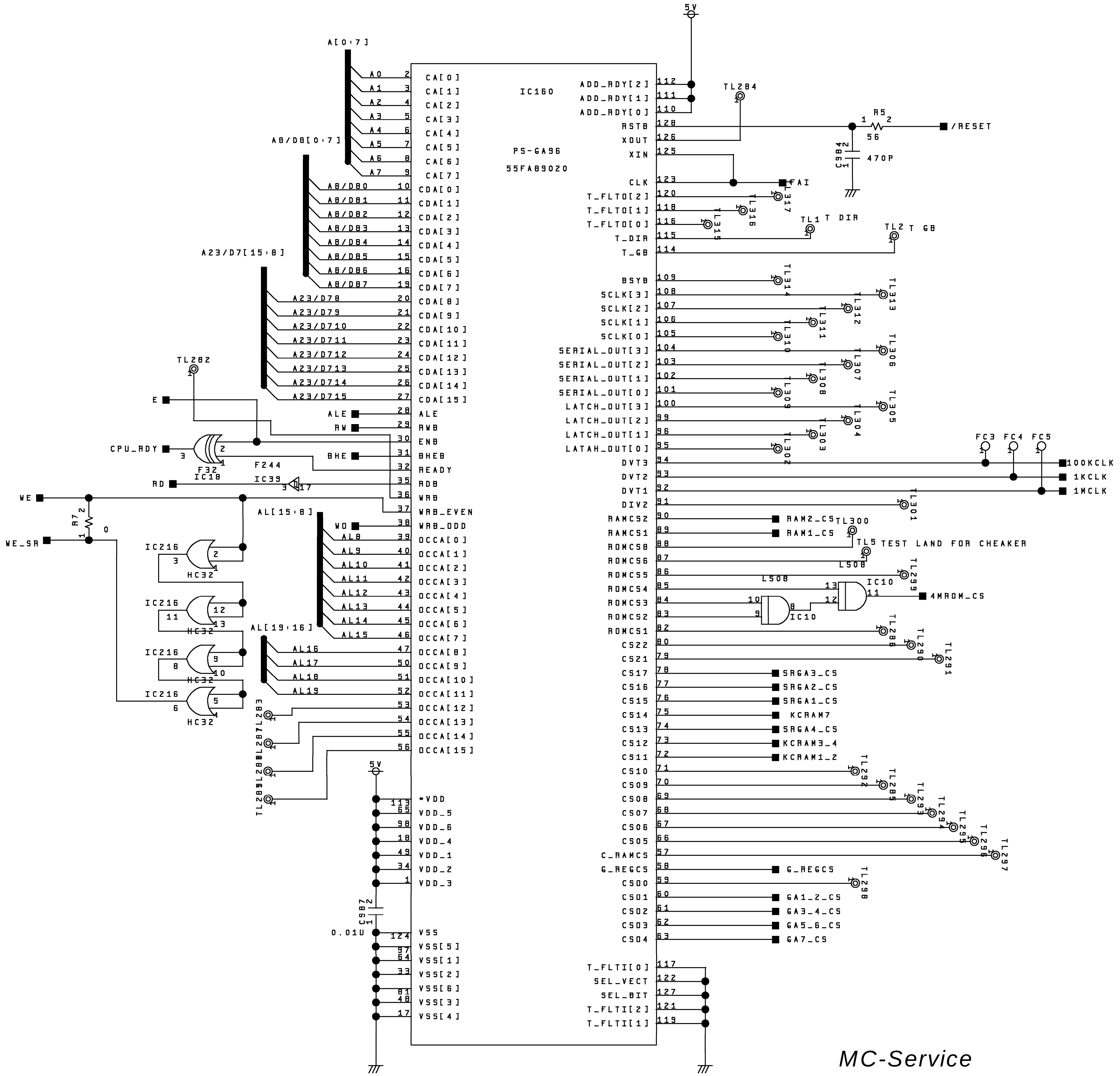
IC15
KCPU6A
6:585089010
A[1:7]
D[8:15]
5V2
TL225 TL233 TL234 TL235
TL236 TL237 TL238
TL239 TL240 TL241 TL242 TL246 TL243 TL244 TL245
TL232
TL231
TL226 TL223
TL229 TL228 TL227
TL224 TL230
AL8
AL9
AL10
WO
RD
GA5_6_CS
/RESET
100KCLK
1KCLK
DDF_GAT
R217
R218
R219
R220
R221
56K
C3 0.01U
R222 56K
C6 470P
RA836
RA34
RA35
RA36
R87
RA38
RA40
RA42
RA43
RA44
RA48
R86 1K
C32 470P
20K
CN481-A2 IP REQ
CN481-A4 INDEX
CN22-A1 APS4
CN22-A2 APS5
CN22-B6 MAIN_SW
CN9-B2 DDF HP
CN30-B5 DCPS_FAN_LD
CN6-A11 PS1 REV_POINT
CN200-A4 PS 2 FEED POINT
CN6-B6 EXIT PS
CN481-B10 YOBI IP
CN200-A5 PS3
CN200-A6 PS4
CN200-A7 PS5
CN200-A8 PS6
CN200-A9 PS7
OPT_REQ
OPT_ACK
CN120-B12 LT15 PS
CN481-A3 IP RESET
EEVV
SCAN_VV
CN481-A8 IP CLK CHG
CN481-A9 DCODR
CN481-B6 TONER V/V
CN481-B7 APC CAL
CN481-B8 INDEX CHG
CN481-B9 CORR
REV_M_CONT
REV_M_F/R
EXIT_M_CONT
REV_M_H/L1
REV_M_H/L2
REV_M_H/L3
EXIT_M_H/L1
V_VALID_SIG
SGU_SEL
EXIT_M_H/L2
EXIT_M_H/L3
SP_SEL
DDF_SEL
DDF_GATE_2
IC72
IC47
IC74
IC73
IC36
TD62503F
SP_SEL
V_VALID_SIG
IC31 HC08
CN481-A10 PRN V/V
5V
R28 2.2K
MC2840
DX8
IC32 HC14
R27 51
C9 470P
CN106-7 DDF_V/V
DDFVV
R2 2.2K
D06
IC92 HC244
R4 51
C607 470P
CN489-B8 WAKE UP
R612 2.2K
D601
R613 51
C605 470P
CN489-B3 PRN REQ
EEVV
CN481-A6 EE V/V
C507 0.01U
C508 0.01U
C8 0.01U
VCC GND
1A 1B SEL STR 1Y
LS157
IC52
IC53
IC6
SCAN_VV
V_VALID_SIG
SGU_SEL
DDFVV
VV1
DDF_SEL
TL8
WRGATEO
VV1
SCAN V/V
CN481-A7
LOW_HEATER
CN60-A8
TR802
N434C
LOWER HEATER
WR_RDY
R501 56K
OUT0 OUT1 OUT2
CLK0 CLK1 CLK2
GAT0 GAT1 GAT2
OSC0 OSC2 PRW RST

MC-Service

CONTROL BOARD CIRCUIT DIAGRAM (16/19)

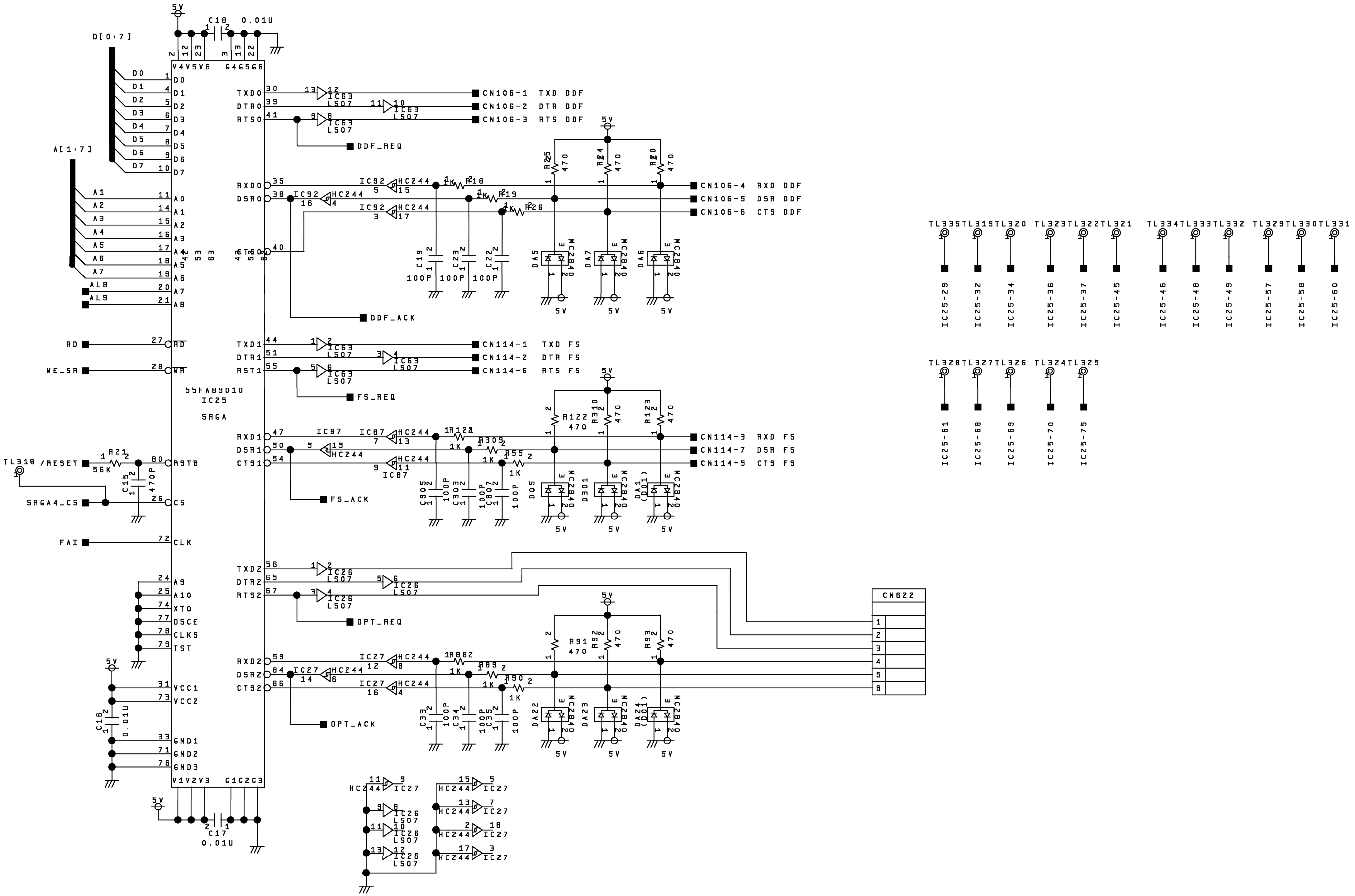

5V
CN800
SM24PSUP
CN801
SM18PSUP
A[1:7]
D[0:7]
7:585089010
IC200
KCPUGA
A1
A2
A3
A4
A5
A6
A7
AL8
AL9
AL10
D0
D1
D2
D3
D4
D5
D6
D7
A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
WR
RD
IOCS
MCS
RW
RSMD
PME
MD2
MD3
VDD1
VDD2
VDD3
VDD4
VSS1
VSS2
VSS3
VSS4
ALE
MD0
MD1
OSC1
CLK0
CLK1
CLK2
GAT0
GAT1
GAT2
OSC0
OSC2
PRW
RST
PA0
PA1
PA2
PA3
PA4
PA5
PA6
PA7
PB0
PB1
PB2
PB3
PB4
PB5
PB6
PB7
PC0
PC1
PC2
PC3
PC4
PC5
PC6
PC7
PD0
PD1
PD2
PD3
PD4
PD5
PD6
PD7
PE0
PE1
PE2
PE3
PE4
PE5
PE6
PE7
PF0
PF1
PF2
PF3
PF4
PF5
PF6
PF7
OUT1
OUT2
OUT0
TL250
TL259
TL260
TL261
TL262
TL263
TL264
TL265
TL266
TL267
TL268
TL269
TL270
TL271
TL272
TL273
TL274
TL275
TL276
TL277
TL278
TL279
TL280
TL281
TL247
TL251
TL256
TL257
TL258
TL249
TL254
TL255
TL253
TL252
TL248
WE
RD
GA7_CS
KCRAM7
RA855
RA856
RA857
RA858
RA859
RA860
RA861
RA862
RA863
RA864
RA865
RA866
RA867
RA868
RA869
RA870
RA871
RA872
2K
R511
R512
R513
R514
R515
56K
C2
0.01U
/RESET
R518
56K
C61
470P
IC59
IC58
IC203
IC34
TD62503F

CONTROL BOARD CIRCUIT DIAGRAM (17/19)


5V
A[0:7]
A0
A1
A2
A3
A4
A5
A6
A7
CA[0]
CA[1]
CA[2]
CA[3]
CA[4]
CA[5]
CA[6]
CA[7]
IC160
PS-GA96
55FA89020
AB/DB[0:7]
AB/DB0
AB/DB1
AB/DB2
AB/DB3
AB/DB4
AB/DB5
AB/DB6
AB/DB7
CDA[0]
CDA[1]
CDA[2]
CDA[3]
CDA[4]
CDA[5]
CDA[6]
CDA[7]
A23/D7[15:8]
A23/D78
A23/D79
A23/D710
A23/D711
A23/D712
A23/D713
A23/D714
A23/D715
CDA[8]
CDA[9]
CDA[10]
CDA[11]
CDA[12]
CDA[13]
CDA[14]
CDA[15]
TL282
E
ALE
RW
CPU_RDY
F32
IC18
F244
BHE
RD
IC39
WE
R7
0
WE_SR
ENB
BHEB
READY
RDB
WRB
WRB_EVEN
WRB_ODD
AL[15:8]
WO
AL8
AL9
AL10
AL11
AL12
AL13
AL14
AL15
DCCA[0]
DCCA[1]
DCCA[2]
DCCA[3]
DCCA[4]
DCCA[5]
DCCA[6]
DCCA[7]
IC216
HC32
AL[19:16]
AL16
AL17
AL18
AL19
DCCA[8]
DCCA[9]
DCCA[10]
DCCA[11]
DCCA[12]
DCCA[13]
DCCA[14]
DCCA[15]
TL283
TL287
TL288
TL289
+VDD
VDD_5
VDD_6
VDD_4
VDD_1
VDD_2
VDD_3
C987
0.01U
VSS
VSS[5]
VSS[1]
VSS[2]
VSS[6]
VSS[3]
VSS[4]
ADD_RDY[2]
ADD_RDY[1]
ADD_RDY[0]
RSTB
XOUT
XIN
CLK
T_FLTO[2]
T_FLTO[1]
T_FLTO[0]
T_DIR
T_GB
TL284
R5
56
C984
470P
/RESET
FAI
TL317
TL316
TL315
TL1 T DIR
TL2 T GB
BSYB
SCLK[3]
SCLK[2]
SCLK[1]
SCLK[0]
SERIAL_OUT[3]
SERIAL_OUT[2]
SERIAL_OUT[1]
SERIAL_OUT[0]
LATCH_OUT[3]
LATCH_OUT[2]
LATCH_OUT[1]
LATAH_OUT[0]
TL314
TL313
TL312
TL311
TL310
TL306
TL307
TL308
TL309
TL305
TL304
TL303
TL302
DVT3
DVT2
DVT1
DIV2
FC3
FC4
FC5
100KCLK
1KCLK
1MCLK
TL301
RAMCS2
RAMCS1
ROMCS8
ROMCS6
ROMCS5
ROMCS4
ROMCS3
ROMCS2
ROMCS1
RAM2_CS
RAM1_CS
TL300
TL5 TEST LAND FOR CHEAKER
LS08
TL299
IC10
4MROM_CS
TL286
TL290
TL291
CS22
CS21
CS17
CS16
CS15
CS14
CS13
CS12
CS11
CS10
CS09
CS08
CS07
CS06
CS05
C_RAMCS
G_REGCS
CS00
CS01
CS02
CS03
CS04
SRGA3_CS
SRGA2_CS
SRGA1_CS
KCRAM7
SRGA4_CS
KCRAM3_4
KCRAM1_2
TL292
TL285
TL293
TL294
TL295
TL296
TL297
G_REGCS
TL298
GA1_2_CS
GA3_4_CS
GA5_6_CS
GA7_CS
T_FLTI[0]
SEL_VECT
SEL_BIT
T_FLTI[2]
T_FLTI[1]

MC-Service

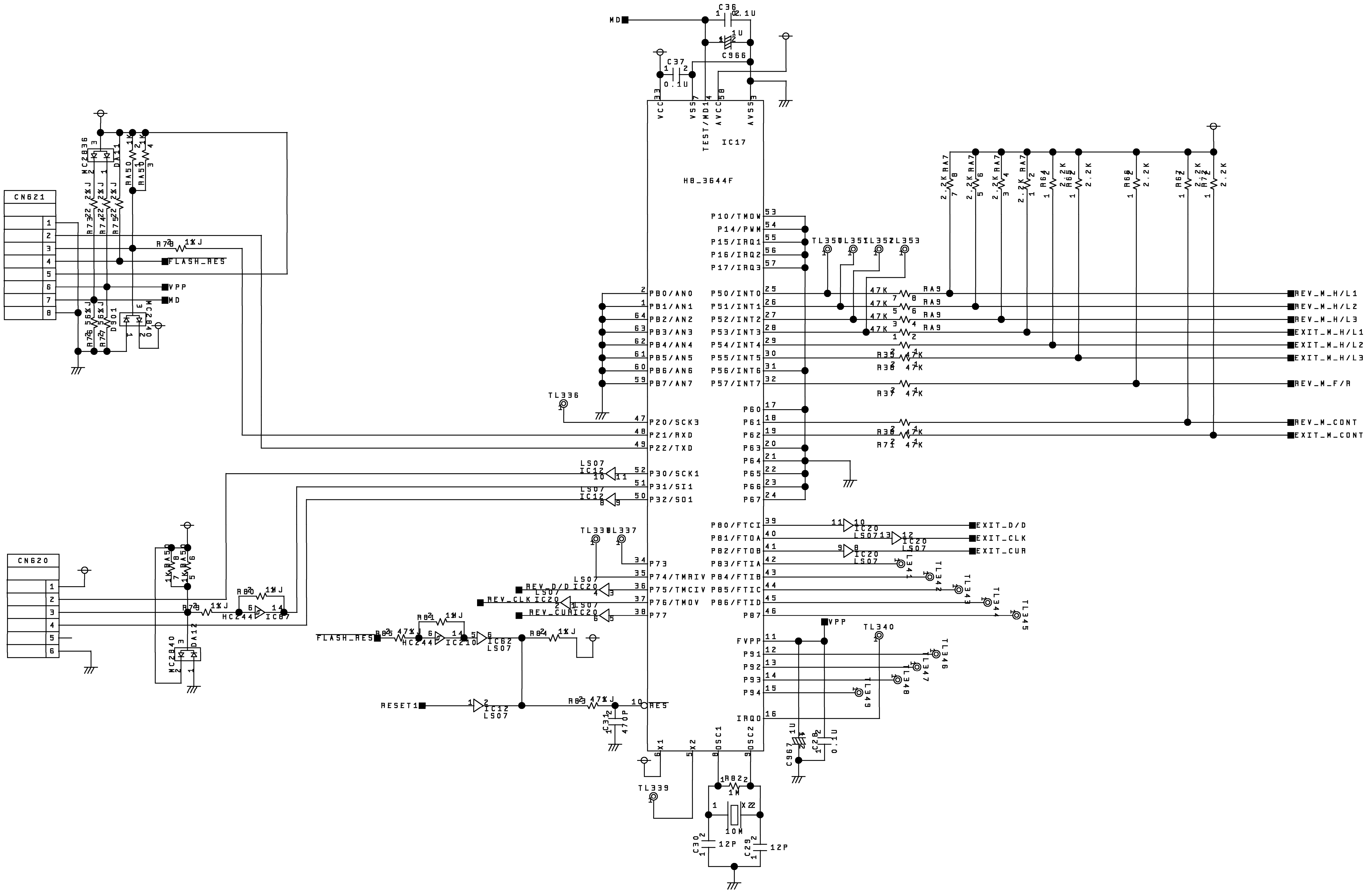
CONTROL BOARD CIRCUIT DIAGRAM (18/19)



5V
C18 0.01U
D[0:7]
A[1:7]
V4V5V6 G4G5G6
D0 D1 D2 D3 D4 D5 D6 D7
A1 A2 A3 A4 A5 A6 A7
AL8 AL9
A0 A1 A2 A3 A4 A5 A6 A7 A8
TXD0 DTR0 RTS0 RXD0 DSR0 CTS0
TXD1 DTR1 RST1 RXD1 DSR1 CTS1
TXD2 DTR2 RTS2 RXD2 DSR2 CTS2
IC63 LS07
IC92 HC244
IC87 HC244
IC26 LS07
IC27 HC244
CN106-1 TXD DDF
CN106-2 DTR DDF
CN106-3 RTS DDF
CN106-4 RXD DDF
CN106-5 DSR DDF
CN106-6 CTS DDF
DDF_REQ
DDF_ACK
CN114-1 TXD FS
CN114-2 DTR FS
CN114-6 RTS FS
CN114-3 RXD FS
CN114-7 DSR FS
CN114-5 CTS FS
FS_REQ
FS_ACK
OPT_REQ
OPT_ACK
CN622
1 2 3 4 5 6
R25 R24 R20 470
R18 R19 R26 1K
C19 C23 C22 100P
DA5 DA7 DA6 MC2840
R122 R310 R123 470
R121 R309 R55 1K
C905 C303 C807 100P
D05 D301 DA1 (D01) MC2840
R91 R92 R93 470
R882 R89 R90 1K
C33 C34 C35 100P
DA22 DA23 DA24 (D01) MC2840
RD
WE_SR
55FA89010
IC25
SRGA
TL318 /RESET
R21 56K
C15 470P
SRGA4_CS
FAI
RSTB CS CLK
A9 A10 XTO OSCE CLKS TST
VCC1 VCC2
C16 0.01U
GND1 GND2 GND3
V1V2V3 G1G2G3
C17 0.01U
TL335 TL319 TL320 TL323 TL322 TL321 TL334 TL333 TL332 TL329 TL330 TL331
IC25-29 IC25-32 IC25-34 IC25-36 IC25-37 IC25-45 IC25-46 IC25-48 IC25-49 IC25-57 IC25-58 IC25-60
TL328 TL327 TL326 TL324 TL325
IC25-61 IC25-68 IC25-69 IC25-70 IC25-75

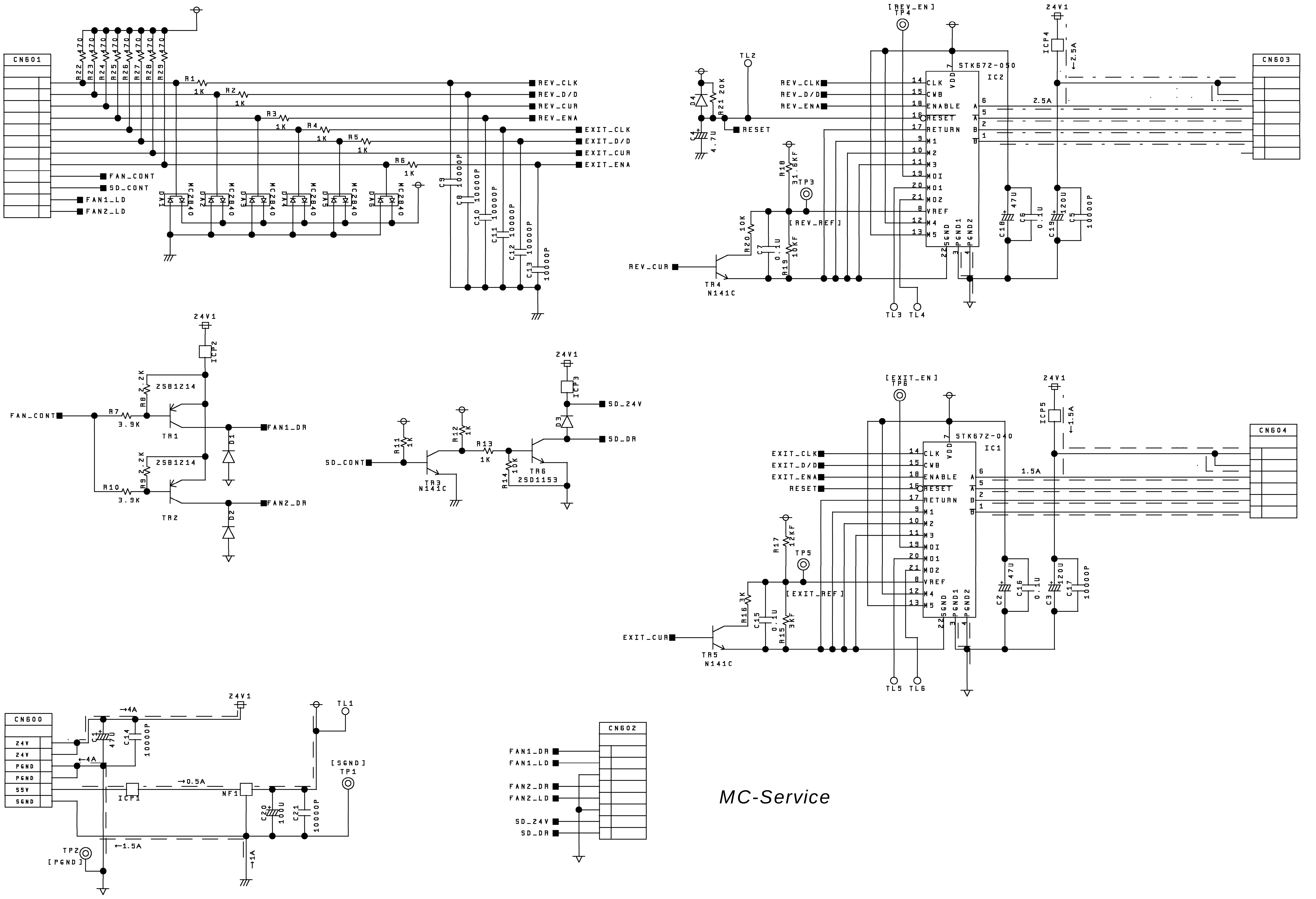
MC-Service

CONTROL BOARD CIRCUIT DIAGRAM (19/19)



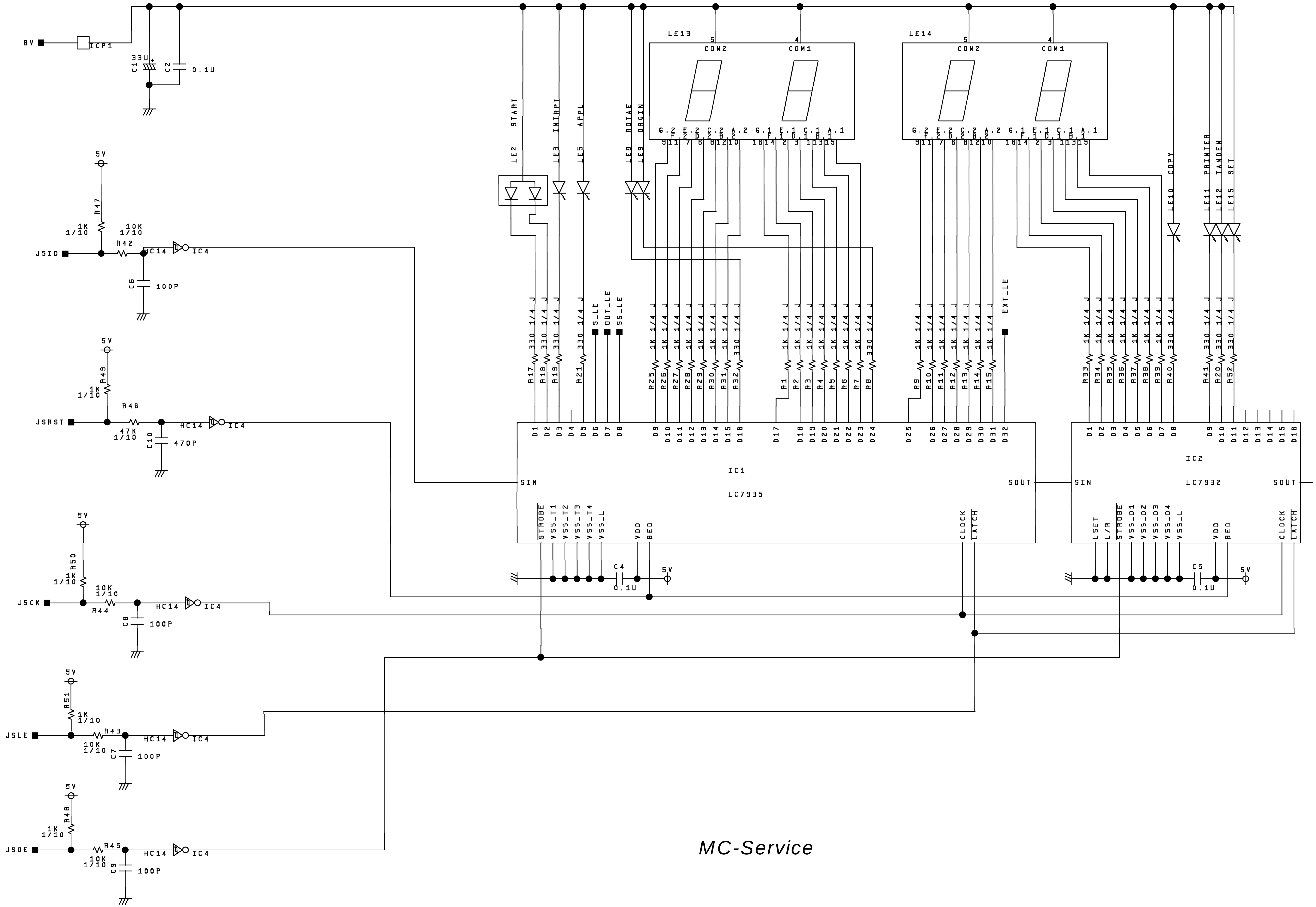
MD
C36
0.1U
1U
C966
C37
0.1U
VCC
VSS
TEST/MD1
AVCC
AVSS
IC17
H8_3644F
CN621
MC2836
DA11
RA50
RA51
R73
R74
R75
R76
R77
R78
D901
MC2840
FLASH_RES
VPP
MD
P10/TMOW
P14/PWM
P15/IRQ1
P16/IRQ2
P17/IRQ3
PB0/AN0
PB1/AN1
PB2/AN2
PB3/AN3
PB4/AN4
PB5/AN5
PB6/AN6
PB7/AN7
P50/INT0
P51/INT1
P52/INT2
P53/INT3
P54/INT4
P55/INT5
P56/INT6
P57/INT7
TL350
TL351
TL352
TL353
RA9
47K
RA7
2.2K
R64
R65
R66
R67
R72
R35
R36
R37
R38
R71
REV_M_H/L1
REV_M_H/L2
REV_M_H/L3
EXIT_M_H/L1
EXIT_M_H/L2
EXIT_M_H/L3
REV_M_F/R
REV_M_CONT
EXIT_M_CONT
TL336
P20/SCK3
P21/RXD
P22/TXD
P60
P61
P62
P63
P64
P65
P66
P67
LS07
IC12
P30/SCK1
P31/SI1
P32/SO1
P80/FTCI
P81/FTOA
P82/FTOB
P83/FTIA
P84/FTIB
P85/FTIC
P86/FTID
P87
IC20
EXIT_D/D
EXIT_CLK
EXIT_CUR
TL341
TL342
TL343
TL344
TL345
TL338
TL337
P73
P74/TMRIV
P75/TMCIV
P76/TMOV
P77
REV_D/D
REV_CLK
REV_CUR
CN620
RA52
RA53
R79
R80
R81
R82
R85
R83
HC244
IC87
IC21
IC62
DA12
FLASH_RES
RESET1
47K J
1K J
C31
470P
RES
FVPP
P91
P92
P93
P94
IRQ0
VPP
TL340
TL346
TL347
TL348
TL349
C967
1U
C28
0.1U
X1
X2
OSC1
OSC2
TL339
R822
1M
X2
10M
C30
12P
C29
12P

PAPER EXIT DRIVE BOARD


CN601
R22 470
R23 470
R24 470
R25 470
R26 470
R27 470
R28 470
R29 470
R1 1K
R2 1K
R3 1K
R4 1K
R5 1K
R6 1K
REV_CLK
REV_D/D
REV_CUR
REV_ENA
EXIT_CLK
EXIT_D/D
EXIT_CUR
EXIT_ENA
FAN_CONT
SD_CONT
FAN1_LD
FAN2_LD
DA1 MC2840
DA2 MC2840
DA3 MC2840
DA4 MC2840
DA5 MC2840
DA6 MC2840
C9 10000P
C8 10000P
C10 10000P
C11 10000P
C12 10000P
C13 10000P
[REV_EN]
TP4
TL2
D4
R21 20K
C4 4.7U
RESET
STK672-050
IC2
VDD 7
CLK 14
CWB 15
ENABLE 18
RESET 16
RETURN 17
M1 9
M2 10
M3 11
MOI 19
MO1 20
MO2 21
VREF 8
M4 12
M5 13
SGND 22
PGND1 3
PGND2 4
R18 31.6KF
TP3
[REV_REF]
R20 10K
C7 0.1U
R19 10KF
REV_CUR
TR4 N141C
TL3
TL4
24V1
ICP4
2.5A
C18 47U
C6 0.1U
C19 120U
C5 10000P
CN603
24V1
ICP2
R8 2.2K
2SB1214
FAN_CONT
R7 3.9K
TR1
D1
FAN1_DR
R9 2.2K
2SB1214
R10 3.9K
TR2
D2
FAN2_DR
24V1
ICP3
SD_24V
D3
SD_DR
R11 1K
R12 1K
R13 1K
R14 10K
SD_CONT
TR3 N141C
TR6 2SD1153
[EXIT_EN]
TP6
STK672-040
IC1
EXIT_CLK
EXIT_D/D
EXIT_ENA
RESET
R17 12KF
TP5
[EXIT_REF]
R16 3K
C15 0.1U
R15 3KF
EXIT_CUR
TR5 N141C
TL5
TL6
24V1
ICP5
1.5A
C2 47U
C16 0.1U
C3 120U
C17 10000P
CN604
CN600
24V
24V
PGND
PGND
55V
SGND
4A
C1 470
C14 10000P
24V1
ICP1
0.5A
NF1
C20 100U
C21 10000P
TL1
[SGND]
TP1
TP2
[PGND]
1.5A
1A
CN602
FAN1_DR
FAN1_LD
FAN2_DR
FAN2_LD
SD_24V
SD_DR

MC-Service

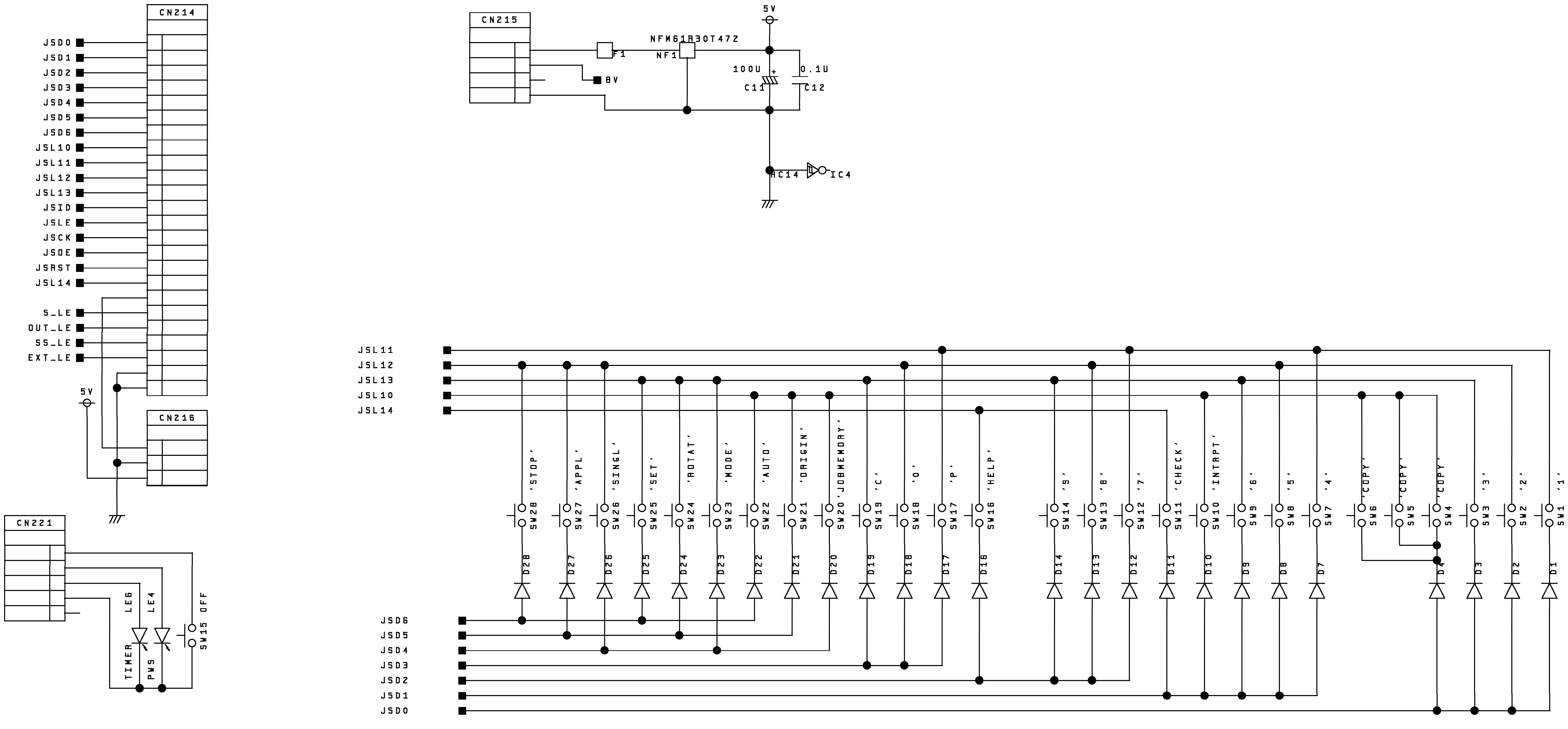
OPERATION BOARD/2 CIRCUIT DIAGRAM (1/2)



8V
ICP1
C1 33U
C2 0.1U
5V
R47
1K 1/10
10K 1/10
R42
JSID
HC14
IC4
C6 100P
R49
1K 1/10
R46
47K 1/10
JSRST
C10 470P
R50
R44
JSCK
C8 100P
R51
R43
JSLE
C7 100P
R48
R45
JSOE
C9 100P
LE2 START
LE3 INTRPT
LE5 APPL
LE8 ROTAE
LE9 ORGIN
LE13
LE14
COM2
COM1
G.2 F.2 E.2 D.2 C.2 B.2 A.2 G.1 F.1 E.1 D.1 C.1 B.1 A.1
LE10 COPY
LE11 PRINTER
LE12 TANDEM
LE15 SET
R17 R18 R19 R21 330 1/4 J
S_LE
OUT_LE
SS_LE
R25 R26 R27 R28 R29 R30 R31 1K 1/4 J
R32 330 1/4 J
R1 R2 R3 R4 R5 R6 R7 1K 1/4 J
R8 330 1/4 J
R9 R10 R11 R12 R13 R14 R15 1K 1/4 J
EXT_LE
R33 R34 R35 R36 R37 R38 R39 1K 1/4 J
R40 330 1/4 J
R41 R20 R52 330 1/4 J
IC1
LC7935
SIN
SOUT
STROBE
VSS_T1
VSS_T2
VSS_T3
VSS_T4
VSS_L
VDD
BEO
CLOCK
LATCH
D1 – D32
IC2
LC7932
LSET
L/R
VSS_D1
VSS_D2
VSS_D3
VSS_D4
D1 – D16
C4 0.1U
C5 0.1U

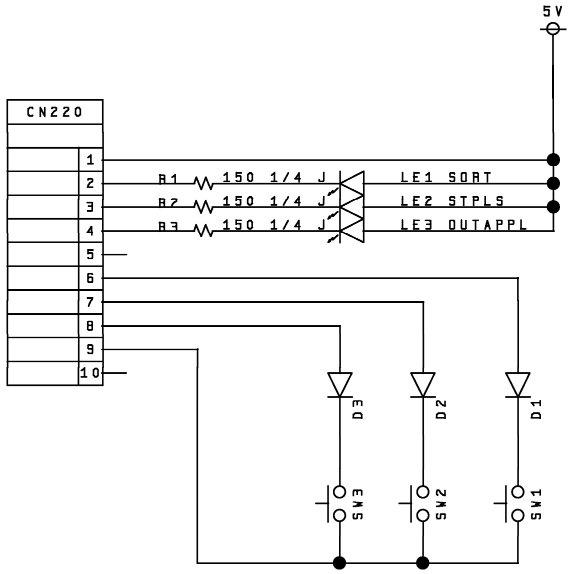
MC-Service

OPERATION BOARD/2 CIRCUIT DIAGRAM (2/2)

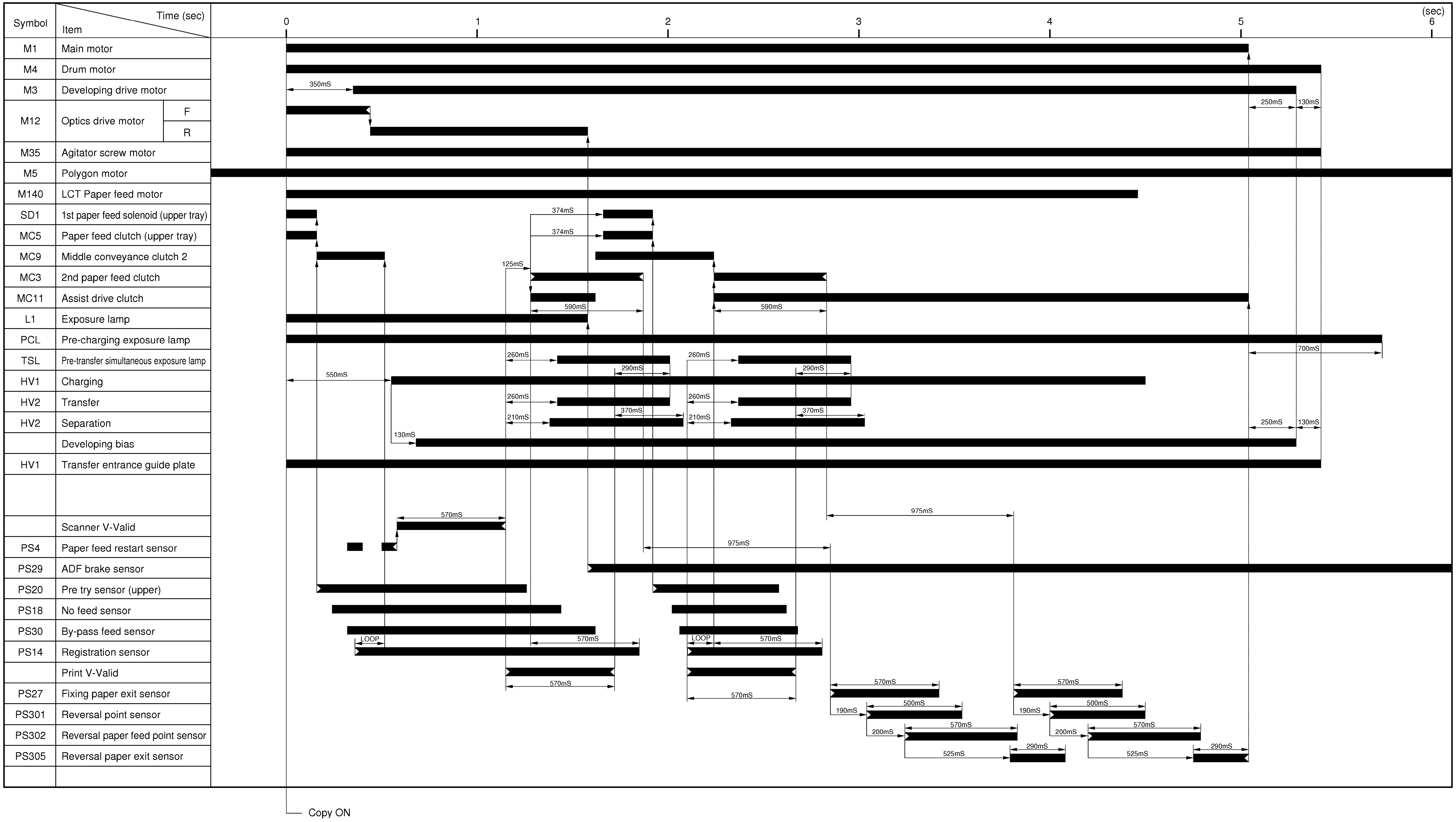

CN214
JSD0
JSD1
JSD2
JSD3
JSD4
JSD5
JSD6
JSL10
JSL11
JSL12
JSL13
JSID
JSLE
JSCK
JSOE
JSRST
JSL14
S_LE
OUT_LE
SS_LE
EXT_LE
5V
CN216
CN221
LE6
LE4
TIMER
PWS
SW15 OFF
CN215
F1
NFM61R30T472
NF1
8V
5V
100U
C11
0.1U
C12
C14
IC4
JSL11
JSL12
JSL13
JSL10
JSL14
'STOP'
'APPL'
'SINGL'
'SET'
'ROTAT'
'MODE'
'AUTO'
'ORIGIN'
'JOBMEMORY'
'C'
'0'
'P'
'HELP'
'9'
'8'
'7'
'CHECK'
'INTRPT'
'6'
'5'
'4'
'COPY'
'COPY'
'COPY'
'3'
'2'
'1'
SW28
SW27
SW26
SW25
SW24
SW23
SW22
SW21
SW20
SW19
SW18
SW17
SW16
SW14
SW13
SW12
SW11
SW10
SW9
SW8
SW7
SW6
SW5
SW4
SW3
SW2
SW1
D28
D27
D26
D25
D24
D23
D22
D21
D20
D19
D18
D17
D16
D14
D13
D12
D11
D10
D9
D8
D7
D4
D3
D2
D1
JSD6
JSD5
JSD4
JSD3
JSD2
JSD1
JSD0

MC-Service

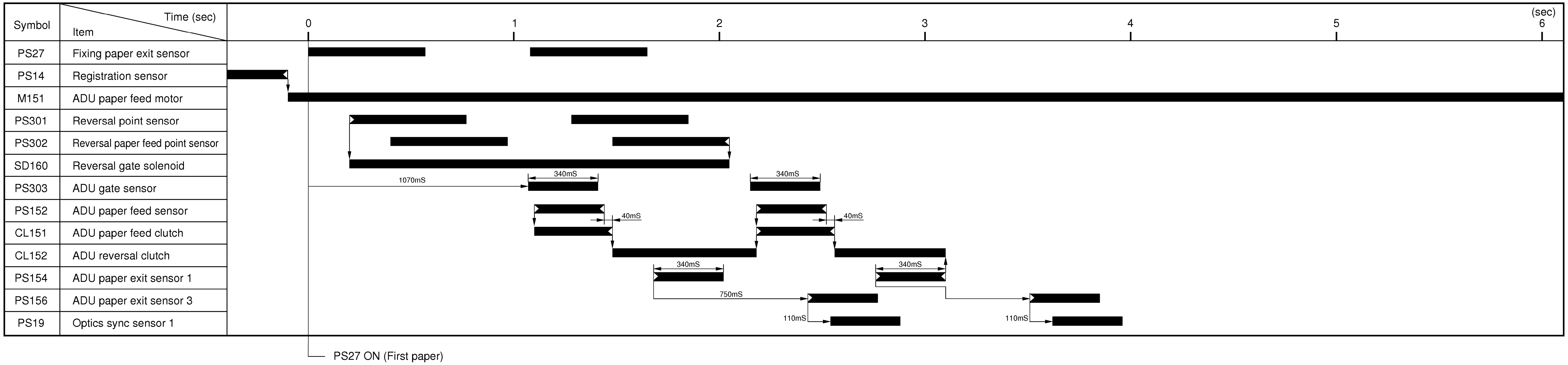
OPERATION BOARD/3 CIRCUIT DIAGRAM


5V
CN220
1
2
3
4
5
6
7
8
9
10
R1
150 1/4 J
R2
150 1/4 J
R3
150 1/4 J
LE1 SORT
LE2 STPLS
LE3 OUTAPPL
D3
D2
D1
SW3
SW2
SW1

7065 TIMING CHART (A4, LIFE SIZE, TWO COPIES, UPPER PAPER FEED)



7065 ADU TIMING CHART (A4, TWO ORIGINALS, TWO SHEETS SET)



4

ADJUSTMENT

HOW TO USE THE ADJUSTMENT SECTION

[1] Composition

This section details adjusting items and procedures. Use this section for making adjustments and as a checklist before implementing corrective measures in the field.

1. Does the power supply meet the requirements?
2. Is the power supply properly grounded?
3. Is the machine sharing its power source with another high current consumption machine that draws large currents intermittently? (e.g. an elevator, air conditioner, or other source of electrical consumption)
4. Is the installation environment suitable?
   a. The machine must be installed in a well-ventilated place free from high temperature, high humidity and direct sunlight.
   b. The machine must be installed on a level floor.
5. Does the cause of a defective image lie in the original itself?
6. Is the density adjusting control at the proper position?
7. Are the platen glass and RADF platen guide clean?
8. Is the correct paper being used for the copy?
9. Are the copying materials and parts replaced when they reach the end of their usable life? (developer, drum, cleaning blade, etc.)
10. Is there toner in the machine?

The following items should also be observed when repairing the machine.

1. Only one side of the AC power line is disconnected when the main switch of this machine is turned off. Always unplug the machine before beginning work. If absolutely necessary to work with the power on, exercise care to avoid being caught in the scanning rear of the exposure unit.
2. Special care should be taken when handling the fixing unit since it operates at extremely high temperatures.
3. The developing unit is surrounded by a strong magnetic field. Keep watches and metering equipment away from it.
4. Avoid scarring the drum with tools or similar objects.
5. Do not touch IC pins with your bare hands.

ADJUSTMENTS WHEN REPLACING PARTS

Adjustments (including checks) and settings are not only required when a defective copy image occurs, but also after replacing or reinstalling certain parts.

[How to Use the Table]

The following items are used in the table throughout this section.

1. Mode

Indicates the adjustment mode.

["P"] : P mode
["25"] : 25 mode
["36"] : 36 mode
["47"] : 47 mode

2. Codes

Indicates the applicable code and/or Copy Quantity Setting button for each mode.

3. Page

Indicates the page to refer to in the Adjustment section.

4. Conditions

New: Indicates adjustment (including check) is required when replacing a new part.
Reinstall: Indicates adjustment (including check) is required when a part has been re-installed.

5. Symbols used in the table

①② ·················: Indicates there is a priority sequence for adjustments (including checks) and settings.
○ (Empty circle): Indicates adjustments (including checks) and settings that can be carried out independently.

		No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
		Adjustment and setting item	1 Process adjustment							2 Image adjustment																		
			1	2	3 Laser adjustment			4	5	1	2 Magnification adjustment				3 Timing adjustment					4 RADF adjustment			5 Centering adjustment					
											1	2	3	4	1	2	3	7	8	1	2	3	1	2	3			
			High voltage adjustment - Charging grid voltage adjustment	L-detecting adjustment	Gradation adjustment (LD1/LD2 offset adjustment 400 dpi)	Gradation adjustment (LD1/LD2 offset adjustment 600 dpi)	Sub pitch offset adjustment	Maximum density adjustment (Dmax adjustment)	Gamma adjustment	Scale plate position auto adjustment	Drum clock adjustment (Printer)	Drum clock adjustment (Platen copy)	Horizontal adjustment (Platen copy)	Drum clock adjustment (RADF copy)	Restart timing adjustment	Paper feed loop adjustment	Lead edge timing adjustment	RADF registration loop adjustment	RADF lead edge timing adjustment	Density adjustment	Original size adjustment	Sensor sensitivity adjustment	Centering adjustment (Front) - for each tray	Centering adjustment (Back) - for ADU	RADF centering adjustment	Drum count reset	Tray paper size setting	Serial number setting
		Mode	36																							47	25	
		Code	1-1	1-2	1-3			1-4	1-5	2-1	2-2-1	2-2-2	2-2-3	2-2-4	2-3-1	2-3-2	2-3-3	2-3-7	2-3-8	2-4-1	2-4-2	2-4-3	2-5-1	2-5-2	2-5-3	091	2	7
		Page	4-55	4-56	4-57	4-57	4-58	4-59	4-59	4-60	4-62	4-63	4-64	4-65	4-66	4-67	4-68	4-69	4-70	4-71	4-72	4-73	4-74	4-75	4-76	4-98	4-16	4-30
No.	Part Name	Condition																										
1	Drum	New	②		③	④	⑤																			①		
2	Developer	New		①	③	④	⑤	②																				
3	High voltage unit	New	○																									
4	Writing unit	New Reinstall			②	③	④				①												⑤	⑥				
5	Memory IC <Note>	New	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		○	○
6	Slit glass	New																		○								
7	Charging control plate	New	○																									
8	RADF control board	New																			○	○						
9	Change of paper size for tray 2,3and4	—																									○	

- **New means replace with a new part and Reinstall means to reinstall the part.**
- **The circles will have a number when there is an adjustment priority.**

Note:

- When replacing a damaged control board, the memory IC on the damaged control board, in principle, is to be used on the new control board.
  A new memory IC can be used on the new control board only when the memory IC is assumed to be damaged.
  In this case, the above adjustment items must be set as adjustment data is not supplied in the new memory IC. Furthermore, 47-92 must be perform prior to performing the above adjustment items in order to make the new memory IC itself effective.
- Be sure to perform 47-96 when performing the adjustment items. By performing 47-96, the adjustment value will recover to the 47-96 performing value by performing 47-93 even upon readjustment.
- △2 See the section "ADJUSTMENT" in each service handbook when adjusting the stapler stopper PS or the folding stopper PS for FNS (FS-108BM) and when doing the cover sheet tray size for PPI (PI-108).

SETTING AND CHECKING WITH P FUNCTION

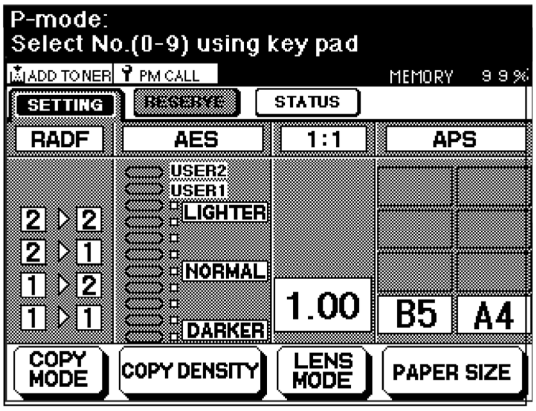
P function enables to display the following parameters with the P button.

0. Checking the Printer Count
1. △2 Checking the Total Count / Set-up Date
2. Checking the PM Count/Starting Date
3. Checking the Drum Count
4. Checking the Developing Count
5. Checking the Density Shift (text/photo)
6. Checking the Density Shift (text)
7. Checking the Density Shift (photo)
8. Checking the Density Shift (Increase contrast)
9. Printing User Data

This section explains the various functions which is exclusive for the service technician.
For those used by the users, refer to "Operation section".

[1] Setting Method of P Function

a. Turn on the main switch.
b. Press P button.
c. P Mode Screen will appear.



P-mode:
Select No.(0-9) using key pad

d. Use the copy quantity setting button to enter the desired number, following the message on the operation panel.
e. Press the Start Print button to confirm the various data displayed in the message area, or output user data.
f. Press Stop/Clear button.
g. Turn off the main switch.

[2] Checking the Printer Count

Step	Operation (Indication)	Entry Terminal
1	Press 0 from the copy quantity setting button.	Copy quantity setting button
2	Press the Start Print button.	Start Print button
3	Check the printer count (IP output only) displayed in the message area.	Operation panel

△2 [3] Checking the Total Count / Set-up Date

Step	Operation (Indication)	Entry Terminal
1	Press 1 from the copy quantity setting button.	Copy quantity setting button
2	Press the Start Print button.	Start Print button
3	Check the total count displayed in the message area.	Operation panel

[4] Checking the PM Count/Starting Date

Step	Operation (Indication)	Entry Terminal
1	Press 2 from the copy quantity setting button.	Copy quantity setting button
2	Press the Start Print button.	Start Print button
3	Check the PM count displayed in the message area.	Operation panel

[5] Checking the Drum Count

Step	Operation (Indication)	Entry Terminal
1	Press 3 from the copy quantity setting button.	Copy quantity setting button
2	Press the Start Print button.	Start Print button
3	Check the drum count displayed in the message area.	Operation panel

[6] Checking the Developing Count

Step	Operation (Indication)	Entry Terminal
1	Press 4 from the copy quantity setting button.	Copy quantity setting button
2	Press the Start Print button.	Start Print button
3	Check the drum count displayed in the message area.	Operation panel

[7] Checking the Density Shift (text/photo)

Step	Operation (Indication)	Entry Terminal
1	Press 5 from the copy quantity setting button.	Copy quantity setting button
2	Press the Start Print button.	Start Print button
3	Check the density shift (text/photo) displayed in the message area.	Operation panel

[8] Checking the Density Shift (text)

Step	Operation (Indication)	Entry Terminal
1	Press 6 from the copy quantity setting button.	Copy quantity setting button
2	Press the Start Print button.	Start Print button
3	Check the density shift (text) displayed in the message area.	Operation panel

[9] Checking the Density Shift (photo)

Step	Operation (Indication)	Entry Terminal
1	Press 7 from the copy quantity setting button.	Copy quantity setting button
2	Press the Start Print button.	Start Print button
3	Check the density shift (photo) displayed in the message area.	Operation panel

[10] Checking the Density Shift (INCREASE CONTRAST)

Step	Operation (Indication)	Entry Terminal
1	Press 8 from the copy quantity setting button.	Copy quantity setting button
2	Press the Start Print button.	Start Print button
3	Check the density shift (increase contrast) displayed in the message area.	Operation panel

[11] Printing User Data

Step	Operation (Indication)	Entry Terminal
1	Press 9 from the copy quantity setting button.	Copy quantity setting button
2	Press the Start Print button.	Start Print button
3	Enter the EKC master key code. (8-digit)	Copy quantity setting button
4	Press the Start Print button.	Start Print button
5	Select the number (1 to 3) that you wish to output. *1	Copy quantity setting button
6	Press the Start Print button. The user data starts to be output.	Start Print button
7	To output a different user data, repeat steps 5 and 6.	
8	Turn off the main switch to cancel the user data output mode.	Main switch

*1: The selection items are as follows.
1 Copy count for each password (256 items)
2 Limit quantity for each password (256 items)
3 Copy count for each size (10 items)

Reference: Each copy count data number describe paper size as follows.

No.	KBJ	Europe	USA
001	—	—	—
002	A3	A3	11x17
003	B4	B4	8.5x14
004	A4	A4	8.5x11
005	B5	B5	5.5x8.5
006	A5	A5	—
007	B6	F4	—
008	8.5x14	—	—
009	8.5x11	—	—
010	Non-standard	Non-standard	Non-standard

MODE CHANGING MENU SELECT

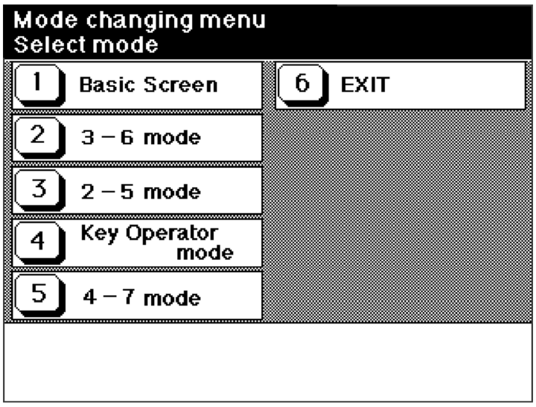
[1] Setting Method

The 7065 includes a new adjustment screen called the "Mode Changing Menu Select" which allows the following modes to be selected without the need to repeatedly turn the machine on and off.

— Basic Screen
— 36 mode
— 25 mode
— Key Operator mode
— 47 mode

1. Turn the main switch on and wait for the "Ready to copy" message.
2. Hold the P button down until the message "Enter 4-digit password to change" is displayed.
3. Enter the password 9272 and press the start print button. (This is a fixed password and it cannot be changed.)

[Mode Changing Menu Screen]



Mode changing menu
Select mode

4. Press the desired number key of the item to set.
5. To return to the Mode Changing Menu Screen, hold down the P button until the Mode Changing Menu Screen reappears.
6. When adjustment has been completed, press the "Basic Screen" button to return to the Basic Copy Screen.
7. Turn off the main switch and then turn back on.

25 MODE

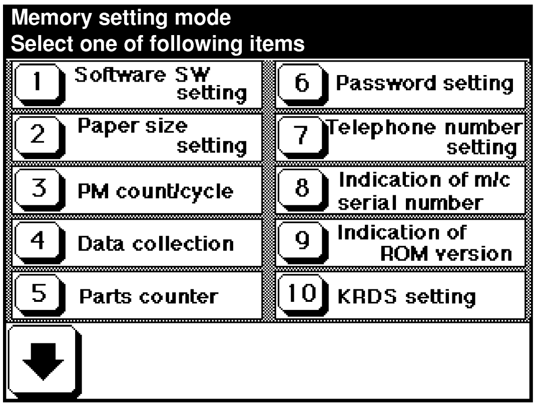
[1] Setting Method

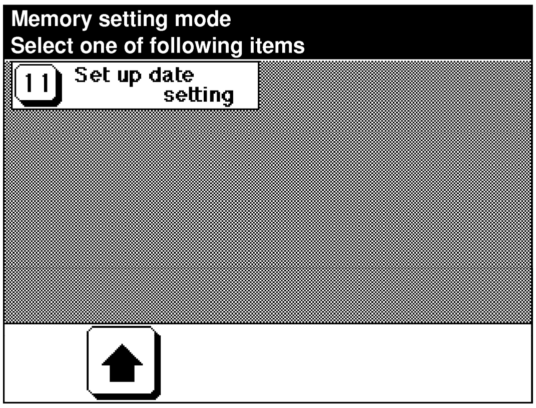
A special operating mode called "25 Mode" has been provided with this machine. This mode enables to rewrite the non-volatile storage and specify other various settings.

1. Turn off the main switch.
2. Turn the main switch back on while holding down 2 and 5 of the copy quantity setting buttons.
   25 Mode Menu Screen will appear.

In the 25 mode normal copy operation becomes unavailable.

[25 Mode Menu Screen]


Memory setting mode
Select one of following items
1 Software SW setting
2 Paper size setting
3 PM count/cycle
4 Data collection
5 Parts counter
6 Password setting
7 Telephone number setting
8 Indication of m/c serial number
9 Indication of ROM version
10 KRDS setting
↓


Memory setting mode
Select one of following items
11 Set up date setting
↑

* 10 KRDS setting will be shaded and unavailable if the optional KRDS or Memory Card Adapter Kit is not equipped.

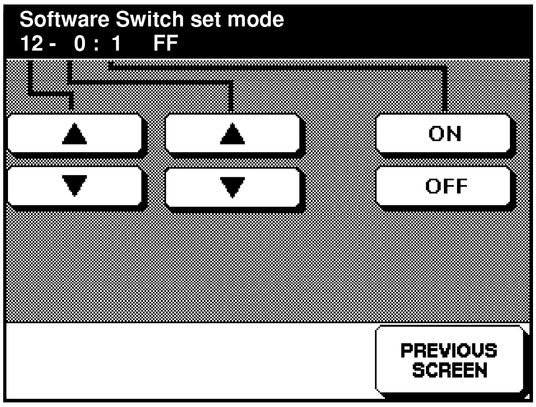
3. Press the desired number key of the item to set.
   Each setting screen will appear.
4. Enter data in each selected screen.
5. Press the PREVIOUS SCREEN key to check the data that has been entered.
6. Turn the main switch off to cancel the 25 mode.
7. New data will be effective after restarting.

[2] Setting Software DIP SW

1. Setting method

This setting specifies the software DIP SW on the software DIP SW Setting Screen. (Refer to "*1" on next page.)

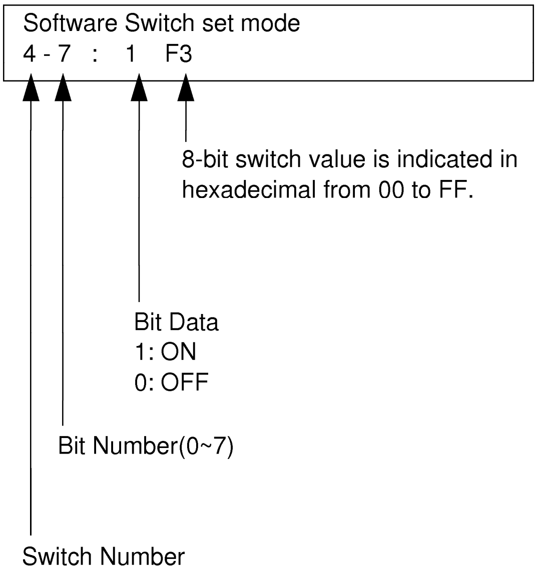
[Software DIP SW Setting Screen]


Software Switch set mode
12 - 0 : 1 FF
▲
▼
▲
▼
ON
OFF
PREVIOUS SCREEN

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu Screen] Press 1 Software SW setting.
3	[Software DIP SW Setting Screen] Select DIP switch number. Use the left ▲ ▼ key.
4	Select bit number of the switch. Use the middle ▲ ▼ key.
5	Select ON(=1) or OFF(=0) of switch. Use ON or OFF key. ON : "1" is set (Set bit). OFF : "0" is set (Clear bit).
6	Press PREVIOUS SCREEN key to end setting.

*1:

- The bit of the switch is written in the non-volatile RAM every time it is changed.
- The numbers shown in the message area are defined as follows:



```
Software Switch set mode
4 - 7  :  1   F3
```

8-bit switch value is indicated in hexadecimal from 00 to FF.

Bit Data
1: ON
0: OFF

Bit Number(0~7)

Switch Number

For each switch function, refer to "List of Software SW".

<List of Software Switch>

▭ : The boxes with thick lines indicate factory settings.

DIPSW No.	Bit	Function	0	1	
DIPSW 1	0	Operation when key counter is removed (when using as a copier)	Ignore	Instantaneous stop jam	
△2	1	A3 (11 x 17) count method	1 count	2 count	(Note)
	2	FNS number of stapled sheets upper limit stop select	Immediate stop	Stop at an interval of copy set	
	3	FNS maximum number of stapled sheets	* 1	* 1	
	4	〃	* 1	* 1	
	5	FNS sensor failure sensing	* 2	* 2	
	6	〃	* 2	* 2	
	7	F/E code screen select (all other than fixing unit F code can be replaced with E code)	No	Yes	
DIPSW 2	0	FNS sub-tray select for service check	* 3	* 3	
	1	〃	* 3	* 3	
	2	Jam code display	No	Yes	
	3	Auto Charge electrode cleaning	Yes	No	
	4	Auto Transfer/Separation electrode cleaning	Yes	No	
	5	FNS over-stacking sensing	Sense	Ignore	
	6	25, 36, 47 mode password request. Password: 9272 (fixed)	No request	Request	
	7	Select A-series papers only (for Europe)	No	Yes	
DIPSW 3	0	–	–	–	
	1	F34 latch	No	Yes	
	2	F35 latch	No	Yes	
	3	F36 latch	No	Yes	
	4	F37 latch	No	Yes	
	5	Operation when a key counter is removed (when using as a printer)	Ignore	Same as copier	
	6	Confirmation message when the Clear button is on	Display	No display	
	7	Status screen	No	Yes	
DIPSW 4	0	Toner level sensing (replenish toner display)	* 5	* 5	
	1	〃	* 5	* 5	
	2	Destination select	* 6	* 6	
	3	〃	* 6	* 6	
	4	–	–	–	
	5	Reserve page memory at job start (Refer to "Note 4" on page 4-11)	No	Yes	
	6	Polygon motor low-speed timing	* 7	* 7	
	7	〃	* 7	* 7	
DIPSW 5	0	F4 size setting	* 8	* 8	
	1	〃	* 8	* 8	
	2	Select paper line (Vertical line/Horizontal line) (for Japan only)	All horizontal.	Horizontal for A4/B5/by-pass feed.	
	3	Polygon motor low-speed select (when idling)	* 9	* 9	
	4	〃	* 9	* 9	
	5	〃	* 9	* 9	
	6	Image lead edge erasure amount during RADF copy	* 10	* 10	
	7	〃	* 10	* 10	

Note: For Europe / 2 count
other than Europe / 1 count

DIPSW No.	Bit	Function	0	1
DIPSW 6	0	Separation claw on timing	* 11	* 11
	1	〃	* 11	* 11
	2	〃	* 11	* 11
	3	〃	* 11	* 11
	4	Separation claw off timing	* 11	* 11
	5	〃	* 11	* 11
	6	〃	* 11	* 11
	7	〃	* 11	* 11
DIPSW 7	0	Toner replenish stop function	No	Yes
	1	Toner replenish stop timing (Refer to "Note 1" on page 4-11)	When copying ends	Interval between copy set
	2	Number of copies available after toner replenishment display	* 19	* 19
	3	〃	* 19	* 19
△2 {	4	—	—	—
	5	—	—	—
	6	LCD contrast adjustment in help screen	No	Yes
	7	Full auto screen setting	Yes	No
DIPSW 8	0	Selects erasure area in Auto Non-image Area Erasure Mode	* 26	* 26
	1	Fixed mag. ratio change	Enable	Disable
	2	Prevents copying at PM display	No	Yes
△2	3	—	—	—
	4	Preferential tray select when APS is canceled	* 12	* 12
	5	〃	* 12	* 12
	6	〃	* 12	* 12
	7	For data collection (For checking collection data 4 to 7 in the 25 mode)	No	Yes
DIPSW 9	0	Number of copies limit	* 13	* 13
	1	〃	* 13	* 13
	2	〃	* 13	* 13
	3	〃	* 13	* 13
	4	Normal/Fine select	* 14	* 14
	5	〃	* 14	* 14
	6	Japanese P81 MSG (MSG for Grocery store use)		
	7	〃		
DIPSW 10	0	Sets the WT daylight saving time	* 16	* 16
	1	〃	* 16	* 16
	2	〃	* 16	* 16
	3	〃	* 16	* 16
	4	Switches the [-A-] display	-A-	1.00
	5	Message on setting screen	Guidance display	Machine status display.
	6	Displays icons on the third line	No	Yes
	7	—	—	—

DIPSW No.	Bit	Function	0	1
DIPSW 11	0	Tray screen OK key display (Effective when layer type menu screen is selected.)	Yes	No
	1	Magnification screen OK key display (Effective when layer type menu screen is selected.)	Yes	No
	2	Density screen OK key display (Effective when layer type menu screen is selected.)	Yes	No
	3	Copy mode OK key display (Effective when layer type menu screen is selected.)	Yes	No
	4	Select time without OK (Effective when layer type menu screen is selected.)	Short	Long
	5	Operation screen select	Layer type menu screen	Direct selection menu screen
	6	Tray icon display (Effective when direct selection menu screen is selected.)	No	Yes
	7	–	–	–
DIPSW 12	0	Sets number of print for 24-hour processing	* 20	* 20
	1	〃	* 20	* 20
	2	–	–	–
	3	Sets number of copies for copy disable (at PM display)	* 18	* 18
	4	〃	* 18	* 18
	5	〃	* 18	* 18
	6	Recognizes KRDS connection	Not connected	Connected
	7	—	—	—
DIPSW 13	0	Isolates Tray 1 as provisional measure	Normal	Unusable
	1	Isolates Tray 2 as provisional measure	Normal	Unusable
	2	Isolates Tray 3 as provisional measure	Normal	Unusable
	3	Isolates Tray 4 as provisional measure	Normal	Unusable
	4	Isolates Tray 5 as provisional measure	Normal	Unusable
	5	Isolates ADU as provisional measure	Normal	Unusable
	6	–	–	–
	7	–	–	–
DIPSW 14	0	–	–	–
	1	Exit to Subtray in non-sort	No	Yes
	2	Variable magnification APS disable	No	Yes
	3	Selects consolidated operation during printer mode	Disable	Enable
	4	Selects arbitrary tray operation during printer mode	Disable	Enable
	5	–	Must not be changed	Must not be used
	6	–	Must not be changed	Must not be used
	7	–	–	–
DIPSW 15	0	Selects first selected tray in auto tray selection	* 22	* 22
	1	〃	* 22	* 22
	2	〃	* 22	* 22
	3	Displays universal tray	Display size	Special
	4	Changes Platen memory read order	N to 1	1 to N
	5	Sets Taiwan A series 25 mode tray size	B series size	K series size
	6	Detects Taiwan K series size	B series size	K series size
	7	Dual prohibition	Not prohibited	Prohibited

DIPSW No.	Bit	Function	0	1
DIPSW 16	0	Platen original size detection AB/inch	Destination series only	Both AB & inch
	1	–	–	–
	2	Platen original size minimum detection	* 23	* 23
	3	〃	* 23	* 23
	4	〃	* 23	* 23
	5	–	–	–
	6	Stop method when toner empty (Refer to "Note 1" below)	No	Stop after paper exit
	7	Thin line reproducibility (Refer to "Note 2" below)	Normal	Smoothing
DIPSW 17	0	Displays total count starting date	Disable	Enable
	1	Sets trailing edge erase amount	* 24	* 24
	2	〃	* 24	* 24
	3	47-15-01 data collection counter clear protect	Enable	Prohibit
	4	–	–	–
	5	Job offset (Refer to "Note 3" below)	No	Yes
	6	–	–	–
	7	Recovery operation when key counter is removed	Yes	No
DIPSW 18	0	Sets tandem mode with auto button	No	Yes
	1	Displays 47-94 data	No	Yes
	2	Selects threshold value in Auto Non-image Area Erasure Mode	* 26	* 26
	3	〃	* 26	* 26
	4	Counts C(K) drive during printer mode	Yes	No
	5	–	–	–
	6	RADF book copy	No	Yes
	7	–	–	–

Note 1: DIP SW related to the stop method during toner empty are DIP SW7-1 and 16-6, and are related as indicated below:
- 16-6 becomes the toner empty stop method if it is set in “1” (Stop after paper exit).
- 7-1 becomes the toner empty stop method if 16-6 is set at “0” (No).

Note 2: The smoothing selection becomes effective when the lines break during thin line copying. The resolution, however, will decrease.

Note 3: A setting which performs offset output between jobs for devices equipped with a finisher.

Note 4: After the original is read, page memory for output operation during output should be used in the following operations: <Rotation, Thick paper mode, Overlay, Shift, Aggregating function>
Therefore, memory overflow may occur during output even after the read operation if the memory is narrowly sufficient when the original is read. This setting is to secure page memory in advance in order to avoid such problems. When securing this page memory, however, the absolute amount of memory is decreased for outputs which do not apply page memory, thus care must be taken when using this setting.

* 1: FNS maximum number of stapled sheets

Mode	1-4	1-3
50 sheets	0	0
45 sheets	0	1
40 sheets	1	0
35 sheets	1	1

* 2: FNS sensor failure sensing

Mode	1-6	1-5
2 Lower limit sensor sensing	0	0
Lower limit sensor sensing Abnormal drop sensing Upper limit sensing	0	1
Lower limit sensor sensing Abnormal drop sensing Upper limit sensing	1	0

Number of copies overrun sensing

* 3: FNS sub-tray select for service check

Mode	2-1	2-0
Does not	0	0
Sub-tray (Exits sheets face down)	0	1
Sub-tray (Exits sheets face up)	1	0

* 5: Toner level sensing (toner replenish display)

Note: When increasing the set value (number of copies), the amount of toner may become insufficient before the toner supply indication, and the density may decrease when copying a large amount of high dark rate originals continuously.

Mode	4-1	4-0
After 100 copies	0	0
After 1000 copies	0	1
After 2000 copies	1	0
After 3000 copies	1	1

* 6: Destination select

Mode	4-3	4-2
Japan	0	0
USA	0	1
Europe/others	1	0

* 7: Polygon motor low-speed timing select

Mode	4-7	4-6
15 sec. after job end	0	0
30 sec. after job end	0	1
60 sec. after job end	1	0
120 sec. after job end	1	1

* 8: F4 size setting

Mode	5-1	5-0
8.5 × 13	0	0
8.25 × 13	0	1
8.125 × 13.25	1	0
8 × 13	1	1

* 9: Polygon motor low-speed select (when idling)

Mode	5-5	5-4	5-3
No low-speed rotation	0	0	0
Low-speed rotation 14,000rpm	0	0	1
Low-speed rotation 11,024rpm	0	1	0
Low-speed rotation 8,000rpm	0	1	1
Stop	1	0	0

* 10: Image lead edge erasure amount during RADF copy

Mode	5-7	5-6
2 mm	0	0
3 mm	0	1
4 mm	1	0
5 mm	1	1

* 11: Separator claw ON setting

Note: Separator jams occur in some cases when the setting is changed.

Mode	6-3	6-2	6-1	6-0
0 mm	0	0	0	0
5 mm	0	0	0	1
10 mm	0	0	1	0
15 mm	0	0	1	1
20 mm	0	1	0	0
25 mm	0	1	0	1
30 mm	0	1	1	0
35 mm	0	1	1	1
40 mm	1	0	0	0
45 mm	1	0	0	1
50 mm	1	0	1	0
55 mm	1	0	1	1
60 mm	1	1	0	0
65 mm	1	1	0	1
70 mm	1	1	1	0
75 mm	1	1	1	1

* 11: Separator claw OFF setting

Note: Separator jams occur in some cases when the setting is changed.

Mode	6-7	6-6	6-5	6-4
50 mm	0	0	0	0
55 mm	0	0	0	1
60 mm	0	0	1	0
65 mm	0	0	1	1
70 mm	0	1	0	0
75 mm	0	1	0	1
80 mm	0	1	1	0
85 mm	0	1	1	1
90 mm	1	0	0	0
95 mm	1	0	0	1
100 mm	1	0	1	0
105 mm	1	0	1	1
110 mm	1	1	0	0
115 mm	1	1	0	1
120 mm	1	1	1	0
125 mm	1	1	1	1

* 12: Preferential tray when APS is canceled.

Mode	8-6	8-5	8-4
Select by destination	0	0	0
Tray 1	0	0	1
Tray 2	0	1	0
Tray 3	0	1	1
Tray 4	1	0	0
Tray 5	1	0	1

Tray selection according to the destinations

Japan:	Tray 1
USA:	Tray 2
Europe/others:	Tray 3

* 13: Number of copies limit

Mode	9-3	9-2	9-1	9-0
No	0	0	0	0
1 copy	0	0	0	1
3 copies	0	0	1	0
5 copies	0	0	1	1
9 copies	0	1	0	0
10 copies	0	1	0	1
20 copies	0	1	1	0
30 copies	0	1	1	1
50 copies	1	0	0	0
99 copies	1	0	0	1

* 14: Normal/fine select

Note: 4ED select tends to cause memory overflow. Also, selection of many functions such as rotation, etc., will not be possible.

Mode	9-5	9-4
1ED + 2ED	0	0
1ED + 4ED	0	1
2ED + 4ED	1	0

* 16: Set the WT daylight saving time

Mode	10-3	10-2	10-1	10-0
0 min.	0	0	0	0
10 min.	0	0	0	1
20 min.	0	0	1	0
30 min.	0	0	1	1
40 min.	0	1	0	0
50 min.	0	1	0	1
60 min.	0	1	1	0
70 min.	0	1	1	1
80 min.	1	0	0	0
90 min.	1	0	0	1
100 min.	1	0	1	0
110 min.	1	0	1	1
120 min.	1	1	0	0
130 min.	1	1	0	1
140 min.	1	1	1	0
150 min.	1	1	1	1

* 18: Sets number of copies for copy disable upon PM arrival.

Note: This set value is effective only when DIP SW 8-2 is set at “1” (Yes).

Mode	12-5	12-4	12-3
1000 copies	0	0	0
2000 copies	0	0	1
3000 copies	0	1	0
4000 copies	0	1	1
5000 copies	1	0	0

* 19: Number of copies available after toner replenishment

Note: When DIP SW 7-0 is set at “1” (Yes) , it will stop when copying the set value in accordance with the toner empty stop method which has been set, and further copying will be disabled until toner is supplied.

Mode	7-3	7-2
100 copies	0	0
1000 copies	0	1
2000 copies	1	0
3000 copies	1	1

* 20: Sets number of print for 24-hour processing

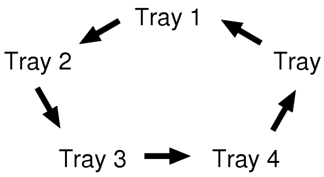
Note: Assuming a device which is energized continuously, the process automatic adjustment applied for image level stabilization is performed per number of prints for the setting indicated below. (Process automatic adjustment is being performed when the power (main switch) is ON.)

Mode	12-1	12-0
2000 times	0	0
4000 times	0	1
3000 times	1	0
5000 times	1	1

△2 * 21: Delete

* 22: Selects first selected tray in auto tray selection

Note: Trays are searched as shown in the figure below, and selection of the first tray to be used is made.



Mode	15-2	15-1	15-0
Search sequence by destination	0	0	0
Search from tray 1	0	0	1
Search from tray 2	0	1	0
Search from tray 3	0	1	1
Search from tray 4	1	0	0
Search from tray 5	1	0	1

Search sequence by destination

Japan	: tray 1
USA	: tray 2
Europe/others	: tray 3

* 23: Platen original size minimum detection.

	Mode	16-4	16-3	16-2	
	A3	0	0	0	
	B6R	0	0	1	
△2	A5R	0	1	0	(Note)
	5.5 x 8.5R	0	1	1	
	11 x 17	1	0	0	
	8.5 x 11	1	0	1	

Note: For USA : 5.5 X 8.5R

* 24: Sets trailing edge erase amount.

	Mode	17-2	17-1
△2	Does not	0	0
	2 mm	0	1
	3 mm	1	0
	5 mm	1	1

* 26: Selects erasure area in Auto Non-image Area Erasure Mode.

This setting is related to the non-image area automatic erase mode of the application function.

1. Selecting the erasure area
   "Rectangle erasure" and "Skewed original compensation" are the two options in selecting an area to be erased, and are used as indicated below:
   - When the shape of the original is not rectangle (circular, etc.) → Select "Skewed original compensation"
   - When the original is rectangle and in standard size → Select "Rectangle erasure"

   In the rectangle erase selection, however, black streaks may appear even for a rectangle shape original if it is set skewed. Furthermore, if there are black areas on the outer rim of the original, it may mistakenly be judged as an non-image, and non-image erase may not be performed accurately. Rectangle erasing becomes effective is such a case.
2. Selecting the Discrimination level (threshold value)
   Discrimination of the original and the outer-original areas (Non-image Area) may not be performed accurately for dark originals, or when miscellaneous lights (light from a fluorescent lamp or the sun) break into the copier. For such case, the threshold value can be changed.
   - To correspond to dark originals → Select 80, 96, 101
     (The smaller value, the more it conforms to darker originals.)
   - To correspond to miscellaneous lights → Select 176

Remarks:
There is a non-image area erasure function setting in the key operator mode memory switch. When the copy paper is selected by manual, the copy area can be selected as follows:
- When copying only the image size area determined by the APS sensor → Select "erase the outer-original (non-image area) area"
- When copying the entire area of the selected copy paper → Select "will not erase the outer-original (non-image area) area"

(Note: The APS sensor will be in effect even when selecting the copy paper by manual.)

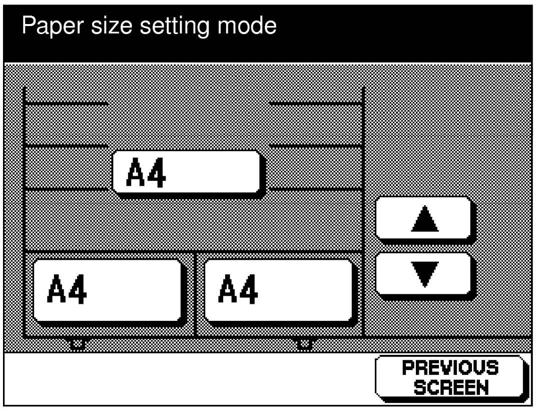
Erasure area/Discrimination level (Threshold value)	8-0	18-3	18-2
Rectangle erasure/128	0	0	0
Rectangle erasure/96	0	0	1
Rectangle erasure/80	0	1	0
Rectangle erasure/176	0	1	1
Skewed original compensation/128	1	0	0
Skewed original compensation/101	1	0	1
Skewed original compensation/176	1	1	0
Skewed original compensation/176	1	1	1

[3] Tray Paper Size Setting

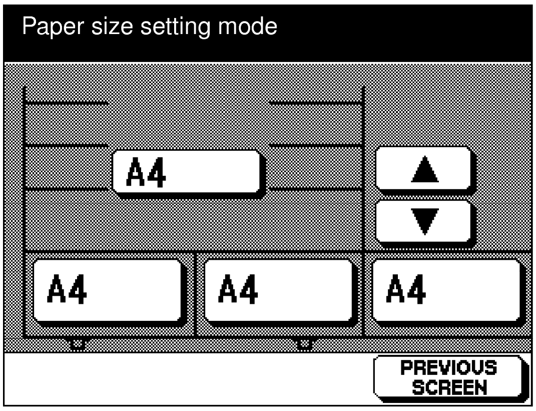
This function stores the paper size into memory if the tray size has been changed.

[Tray Size Setting Screen]

a. When you do not use any optional tray:



b. When you use the optional tray, LT-352:



Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu Screen] Press 2 Paper size setting.
3	[Paper Size Setting Screen] Press the tray key to be changed.
4	Press ▲ or ▼ key to select the paper size.
5	Press PREVIOUS SCREEN key to end setting.

Reference:

- The upper tray of the main body is Tray 1, the lower tray Tray 2, the LCT 1000 tray Tray 3, and the LCT 1500 tray Tray 4. The option tray will be Tray 5. For the tray 2, 3, 4, and 5 only service personnel can perform size setting.
- Availability of paper size depends on the selected tray. The unavailable paper sizes will be skipped and not displayed.
- New data on tray size will be written in non-volatile RAM every time it is changed in this screen.
- The paper size that can be used in the tray 2 as follows.
  A3, B4, A4, A4R, A5R, B5, B5R, B6, 11 x 17, 8.5 x 14, 8 x 13, 8.5 x 11, 5.5 x 8.5, 8.5 x 11R
- The following table shows the paper sizes that can be used in the tray 3.

Japan	A4, B5, 8.5 × 11
Europe	A4, B5, 8.5 × 11
U.S.A.	8.5 × 11, A4, B5

- The following table shows the paper sizes that can be used in the tray 4.

Japan	A4, B5, A4R, B5R, 8.5 × 11, 8.5 × 11R
Europe	A4, B5, A4R, B5R, 8.5 × 11, 8.5 × 11R
U.S.A.	8.5 × 11, 8.5 × 11R, A4, B5, A4R, B5R

Note:

- For tray 1 and the bypass feed tray, settings cannot be performed in the non-volatile RAM.
  Both tray 1 and the bypass feed tray can read the paper size using sensors.
- The screen is automatically changed from the optional tray according to the type of trays.

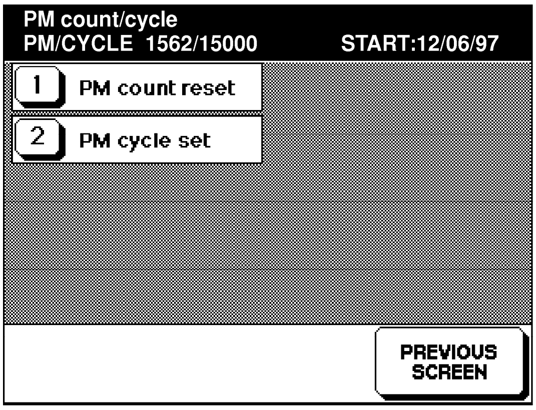
[4] PM Count Reset

Care should be taken to reset PM count properly.

1. Screen selection

Select 3 PM count/cycle in the 25 Mode Menu Screen to display PM Count/Cycle Menu Screen as an initial screen.

[PM Count/Cycle Menu Screen]



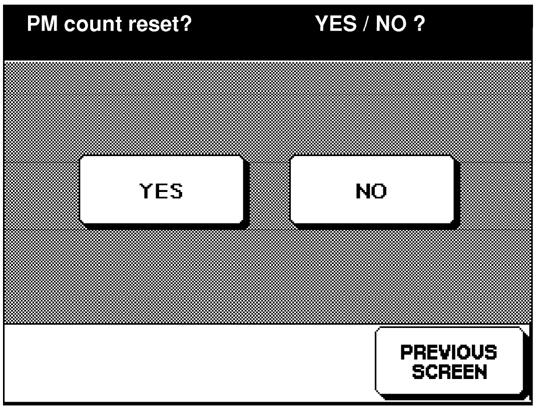
PM count/cycle
PM/CYCLE 1562/15000 START:12/06/97

Select 1 PM count reset to display PM Count Reset Screen.

2. PM count reset

Select whether to reset the count in the PM Count Reset Screen.

[PM Count Reset Screen]



PM count reset? YES / NO ?

(1) Select YES in the PM Count Reset Screen to reset the PM count and PM count start date will be set automatically.
(2) Select NO or PREVIOUS SCREEN key to return to PM Count/Cycle Menu Screen.

[5] Setting PM Cycle

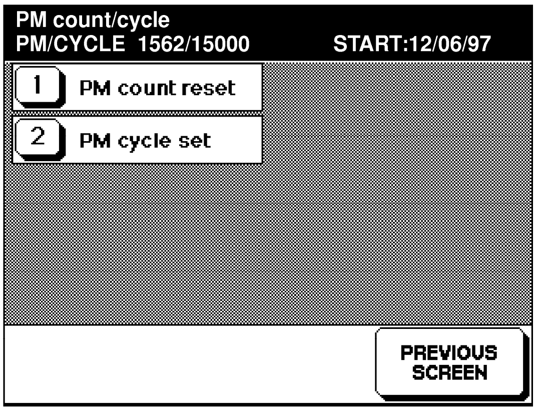
This function sets the PM cycle.

Note: PM cycle is set in advance. This is used when changing the cycle.

1. Screen selection

Select 3 PM count/cycle in the 25 Mode Menu Screen to display PM Count/Cycle Menu Screen as an initial screen.

[PM Count/Cycle Menu Screen]



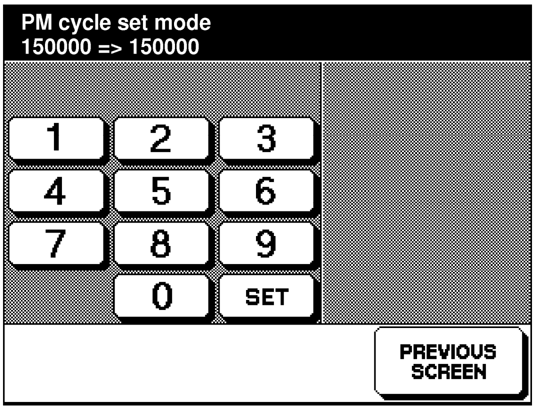
PM count/cycle
PM/CYCLE 1562/15000 START:12/06/97

Select 2 PM cycle set to display PM Cycle Setting Screen.

2. Setting method

Enter PM cycle in the PM Cycle Setting Screen.

[PM Cycle Setting Screen]



PM cycle set mode
150000 => 150000

(1) On the second row of the message area, the current PM cycle value (on the left side) and the newly entered value (on the right side) are displayed.
(2) Enter the first three digits of the value (number of hundred thousands, ten thousands and thousands) using the numeric key on the screen.
(3) The first entered number will be shifted to the left end.

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu Screen] Press 3 PM count/cycle.
3	[PM Count/Cycle Menu Screen] Press 2 PM cycle set.
4	[PM Cycle Setting Screen] Enter the first three digits of the PM cycle value (number of hundred thousands, ten thousands and thousands) using the numeric keys on the screen.
5	Press SET key to enter the PM cycle that has been entered.
6	Press PREVIOUS SCREEN key to end setting and return to PM Count/Cycle Menu Screen.

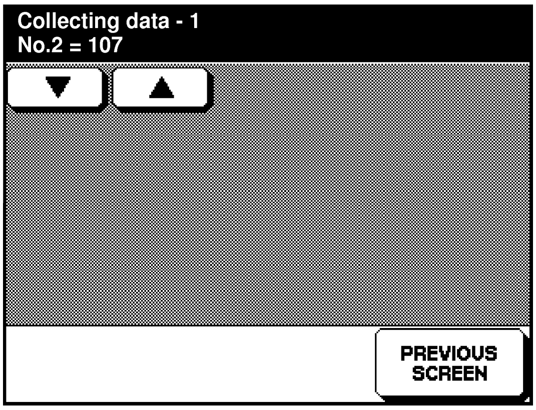
[6] Data Collection

This function enables to view the various data recorded in the machine.

1. Data view method

Select 4 Data collection in the 25 Mode Menu Screen.

[Data Collection Screen]



Collecting data - 1
No.2 = 107

<List of Available Data>

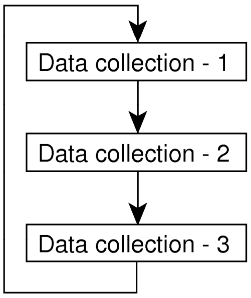
No.	Classification	Contents	Pre-operation
1	Data collection -1	Count number of copies by each size (Printer mode and Copy mode)	–
		Count ADF original feed quantities	
2	Data collection -2	Count number of copies by each size (Printer mode)	–
3	Data collection -3	Count number of copies by each size (Copy mode)	–
4	Data collection -4	Count number of JAM occurrence by each Jam code	Enter the 25 mode. Select 1 Software SW setting. Set the address to 8-7 : 1 *1
5	Data collection -5	Count number of copies by each mode	
6	Data collection -6	Count number of SC occurrence (F code)	
7	Data collection -7	Count number of SC occurrence (E code)	

*1: It is possible to view only data collection -1 to 3 if DIP SW8-7 is set to 0.

(1) The data is displayed at the second row of the message area as "Data number (No.) : Count value (000000)".
(2) The data number can be changed by pressing ▼ ▲ key.
(3) Press and hold ▼ ▲ key to display the next items continuously.

2. Data view procedure (data collection 1-3)

a. Operation procedure

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu Screen] Press ④ Data collection.
3	[Data Collection Screen] Press "Auto Reset" button and select Data Collection 1 to 3.  Data collection - 1 Data collection - 2 Data collection - 3
4	Change the data number. Press ▲ ▼ key.
5	Repeat steps 3 - 4 to check the various data.
6	Press PREVIOUS SCREEN key to end checking.

b. Data details

(1) Data collection 1

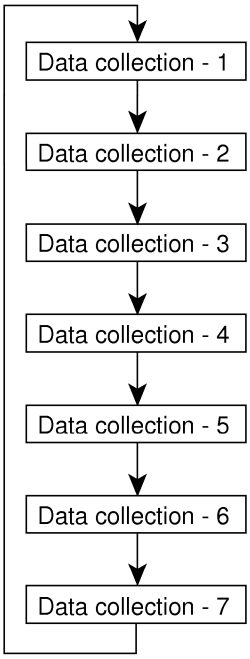
Type	Size No.	Paper Size for Destination			Maximum Count No.
		Japan	U.S.A.	Europe	
Count number of copies by each size (Printer mode and Copy mode)	1	—	—	—	99,999,999
	2	A3	11x17	A3	99,999,999
	3	B4	8.5x14	B4	99,999,999
	4	A4	8.5x11	A4	99,999,999
	5	B5	5.5x8.5	B5	99,999,999
	6	A5	—	A5	99,999,999
	7	B6	—	F4	99,999,999
	8	8.5x14	—	—	99,999,999
	9	8.5x11	—	—	99,999,999
	10	Non-standard size			99,999,999
Count ADF original feed quantities	11	ADF (1-1 or 1-2)			99,999,999
	12	RADF (2-1 or 2-2)			99,999,999

(2) Data Collection 2, 3

Type	Size No.	Paper Size for Destination			Maximum Count No.
		Japan	U.S.A.	Europe	
Count number of copies by each size (at printer mode or copy mode).	1	—	—	—	99,999,999
	2	A3	11x17	A3	99,999,999
	3	B4	8.5x14	B4	99,999,999
	4	A4	8.5x11	A4	99,999,999
	5	B5	5.5x8.5	B5	99,999,999
	6	A5	—	A5	99,999,999
	7	B6	—	F4	99,999,999
	8	8.5x14	—	—	99,999,999
	9	8.5x11	—	—	99,999,999
	10	Non-standard size			99,999,999

3. Data view procedure (data collection 4 - 7)

a. Operation procedure

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu Screen] Press ① Software SW setting.
3	Set the DIP switch No. 8-7 to 1.
4	Press PREVIOUS SCREEN key to return to 25 Mode Menu Screen.
5	Press ④ Data collection to display the Data Collection -1 Screen.
6	Pressing "Auto Reset" button enables to display next data collection screen.  Data collection - 1 Data collection - 2 Data collection - 3 Data collection - 4 Data collection - 5 Data collection - 6 Data collection - 7
7	Using ▲ ▼ key, select the desired data number.
8	Press PREVIOUS SCREEN key to end the operation.

b. Data details

(1) Data collection -4

Count number of JAM occurrence by each Jam code

No.	Jam code	Maximum count No.
1	–	9,999
2	–	9,999
3	–	9,999
4	–	9,999
5	–	9,999
6	–	9,999
7	–	9,999
8	–	9,999
9	J19	9,999
10	J21	9,999
11	J31	9,999
12	J32	9,999
13	J61	9,999
14	J62	9,999
15	J63	9,999
16	J72	9,999
17	–	9,999
18	J92	9,999
19	J93	9,999
20	J94	9,999
21	–	9,999
22	J11-2	9,999
23	J11-3	9,999
24	J11-4	9,999
25	–	9,999
26	J12-2	9,999
27	J12-3	9,999
28	J12-4	9,999
29	–	9,999
30	J13-2	9,999
31	J13-3	9,999
32	J13-4	9,999
33	–	9,999
34	J14-2	9,999
35	J14-3	9,999
36	J14-4	9,999
37	J30	9,999
△1 38	J95	9,999
39	–	9,999
40	J96	9,999
41	J10-2	9,999
42	J10-4	9,999
43	–	9,999
44	–	9,999
45	J17-3	9,999
46	J17-4	9,999
47	J17-5	9,999
48	J17-6	9,999
49	–	9,999
50	–	9,999
51	–	9,999
52	–	9,999
53	–	9,999
54	–	9,999
55	–	9,999
56	–	9,999
57	–	9,999
58	J15-2	9,999
59	J15-3	9,999
60	J15-4	9,999
61	J33-2	9,999
62	J33-3	9,999
63	J33-4	9,999

(2) Data collection -5
Count number of copies by each mode

No.	Contents	Maximum Count No.
1	Platen 1-1 mode	99,999,999
2	Platen 1-2 mode	99,999,999
3	RADF2-1 mode	99,999,999
4	RADF2-2 mode	99,999,999
5	RADF1-1 mode	99,999,999
6	RADF1-2 mode	99,999,999
7	Staple sort	99,999,999
8	Sort	99,999,999
9	Group	99,999,999
10	No. of stapling time	99,999,999
11	1.0 magnification mode	99,999,999
12	RE1	99,999,999
13	RE2	99,999,999
14	RE3	99,999,999
15	RE4	99,999,999
16	RE5	99,999,999
17	RE6	99,999,999
18	Arbitray magnification	99,999,999
19	Zoom	99,999,999
20	4.00 magnification	99,999,999
21	0.33 magnification	99,999,999
22	AMS	99,999,999
23	APS	99,999,999
24	AE	99,999,999
25	Interrupt	99,999,999
26	Bypass feed	99,999,999
27	Book copy	99,999,999
28	Frame erase	99,999,999
29	Fold erase	99,999,999
30	Shift	99,999,999
31	Reduction shift	99,999,999
32	Thick paper	99,999,999
33	Thin paper	99,999,999
34	Sheet/Cover interleave (except for thick paper)	99,999,999
35	–	99,999,999
36	OHP (blank paper interleave)	99,999,999
37	Mixed Original	99,999,999
38	Job memory	99,999,999
39	Pre-heat	99,999,999
40	Copy quantity is set to 1.	99,999,999
41	Copy quantity is set between 2 and 5.	99,999,999
42	Copy quantity is set between 6 and 10.	99,999,999
43	Copy quantity is set to 11 or above.	99,999,999
44	Sheet/Cover interleave start	99,999,999
45	—	99,999,999
46	Text/Photo Enhance (Photo)	99,999,999
47	—	99,999,999
48	Verti./Horiz. zoom	99,999,999
49	Booklet	99,999,999
50	Single step	99,999,999
51	Un-select Text/Photo Enhance	99,999,999
52	Text/Photo Enhance (Text)	99,999,999
53	Copy density (user set)	99,999,999
54	OHP(copy paper)	99,999,999
55	Sheet/Cover interleave (thick paper)	99,999,999
56	—	99,999,999
57	Image insert	99,999,999
58	Chapter	99,999,999
59	Combination	99,999,999
60	Repeat	99,999,999
61	Reverse image	99,999,999
62	Non-image area erase	99,999,999
63	—	99,999,999
64	—	99,999,999
65	—	99,999,999
66	—	99,999,999
67	—	99,999,999
68	Print mode	99,999,999

(3) Data collection -6

Count number of SC occurrence (F code)

No.	SC Code	Maximum count No.
1	F18-1	9,999
2	F18-2	9,999
3	F18-3	9,999
4	F18-4	9,999
5	F28-1	9,999
6	F28-2	9,999
7	F34-1	9,999
8	F34-2	9,999
9	F35-1	9,999
10	F35-2	9,999
11	F36-1	9,999
12	F36-2	9,999
13	–	9,999
14	–	9,999
15	–	9,999
16	–	9,999
17	–	9,999
18	–	9,999
19	–	9,999
20	–	9,999
21	–	9,999
22	–	9,999
23	–	9,999
24	–	9,999
25	–	9,999
26	–	9,999
27	–	9,999
28	–	9,999
29	–	9,999
30	–	9,999
31	–	9,999
32	–	9,999
33	–	9,999
34	–	9,999
35	F22-1	9,999
36	F22-2	9,999
37	–	9,999
38	F28-3	9,999
39	–	9,999
40	–	9,999
41	–	9,999
42	–	9,999
43	F49-0	9,999
44	F49-1	9,999
45	F49-2	9,999

No.	SC Code	Maximum count No.
46	F49-3	9,999
47	F49-4	9,999
48	F49-5	9,999
49	F51-1	9,999
50	F51-2	9,999
51	F51-3	9,999
52	F51-4	9,999
53	F51-5	9,999
54	F51-6	9,999
55	F51-7	9,999
56	–	9,999
57	F51-9	9,999
58	F52-1	9,999
59	F52-2	9,999
60	F52-3	9,999
61	F52-4	9,999
62	F52-5	9,999
63	F52-6	9,999
64	–	9,999
65	–	9,999
66	–	9,999
67	–	9,999
68	–	9,999
69	–	9,999
70	–	9,999
71	–	9,999
72	–	9,999
73	F18-5	9,999
74	–	9,999
75	–	9,999
76	–	9,999
77	–	9,999
78	–	9,999
79	–	9,999
80	–	9,999
81	–	9,999
82	–	9,999
83	–	9,999
84	–	9,999
85	–	9,999
86	–	9,999
87	F37-1	9,999
88	F52-8	9,999
89	F52-9	9,999
90	F52-10	9,999
91	F52-11	9,999
92	F52-12	9,999

(4) Data collection -7
Count number of SC occurrence (E code)

No.	E Code	Maximam count No.
1	–	9,999
2	E48	9,999
3	E46-0	9,999
4	–	9,999
5	E46-2	9,999
6	E46-6	9,999
7	E46-8	9,999
8	E46-9	9,999
9	E60	9,999
10	E67	9,999
11	E70	9,999
12	E77-1	9,999
13	E77-2	9,999
14	E77-3	9,999
15	E77-4	9,999
16	E77-5	9,999
17	E77-6	9,999
18	E77-7	9,999
19	E77-8	9,999
20	–	9,999
21	E46-3	9,999
22	E46-11	9,999
23	E46-12	9,999
24	E41-1	9,999
25	E41-2	9,999
26	E41-3	9,999
27	E41-4	9,999
28	E47-1	9,999
29	E47-2	9,999
30	E47-3	9,999
31	E47-4	9,999
32	E47-5	9,999
33	E41-5	9,999
34	E47-6	9,999
35	E46-5	9,999
36	E46-7	9,999
37	E46-10	9,999
38	E46-15	9,999
39	E46-16	9,999
40	E46-17	9,999

No.	E Code	Maximam count No.
41	E46-20	9,999
42	E77-9	9,999
43	E77-11	9,999
44	E77-12	9,999
45	E77-15	9,999
46	E77-21	9,999
47	E77-22	9,999
48	E77-23	9,999
49	E77-24	9,999
50	E77-25	9,999
51	E77-26	9,999
52	E77-31	9,999
53	E77-32	9,999
54	E77-33	9,999
55	E77-34	9,999
56	E77-35	9,999
57	E77-41	9,999
58	E77-91	9,999
59	E77-92	9,999
60	E46-24	9,999
61	E46-25	9,999

[7] Copy Count by Parts to be Replaced

The following settings are used for arbitrary parts or data.

1. Copy count reset
2. Limit value setting
3. Part number setting
4. Part name setting

Data No.	Count timing	Part name initial status
1	When copy count (paper exit and ADU)	Not set (Setting is available)
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17	When PI-108 feed	<PI>
18	When stapling select (at rear)	<STAPLER/R>
19	When stapling select (at front)	<STAPLER/F>
20	When LT-352 paper feed	<TRAY 5>
21	When by-pass paper feed	<BY-PASS>
22	When tray 1 select	<TRAY 1>
23	When tray 2 select	<TRAY 2>
24	When tray 3 select	<TRAY 3>
25	When tray 4 select	<TRAY 4>
26	When ADU paper feed	<ADU>
27	When main unit paper exit	<MB-EXIT>
28	When ADF feed	<ADF 1>
29	When ADF feed	<ADF 2>
30	When ADF feed	<ADF 3>

<Initial Status>

* Part numbers 1~30 are not set.

* Part names No. 1~17 are not set.

* Refer to the part names of No. 18~30 in the table above.

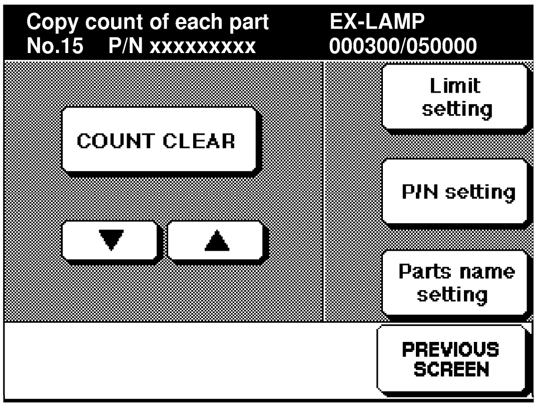
1. Copy count reset by parts to be replaced

This function resets the copy count by parts to be replaced.

<Count Reset Selection>

Select 5 Parts counter in the 25 Mode Menu Screen to display Copy Count Screen by Parts to be Replaced as an initial screen. Select the count reset here.

[Copy Count Screen by Parts to be Replaced]



Copy count of each part EX-LAMP

No.15 P/N xxxxxxxxx 000300/050000

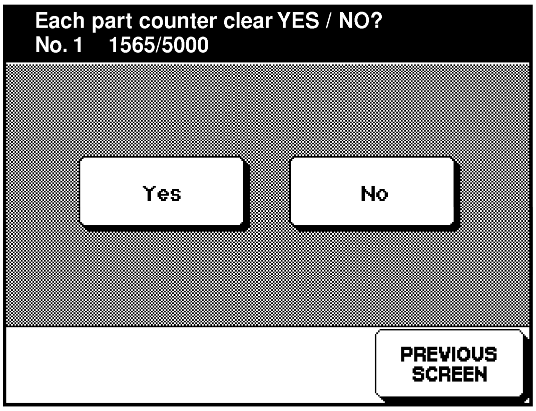
(1) Data number, count value then limit value are displayed on the second row of the message area.

(2) The data number can be changed by pressing ▲ ▼ key.

(3) Press and hold ▲ ▼ key to display next items continuously.
The count/limit value for the selected data No. will be displayed.

(4) Press COUNT CLEAR key to return to Copy Count Reset Screen by Parts to be Replaced.

[Copy Count Reset Screen by Parts to be Replaced]



Each part counter clear YES / NO?
No. 1 1565/5000

(5) Select YES key to reset the copy count. The screen returns to Copy Count Screen by Parts to be Replaced after the count is cleared.
(6) Select NO key to return to Copy Count Screen by Parts to be Replaced without resetting any count.

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu Screen] Press 5 Parts counter.
3	[Copy Count Screen by Parts to be Replaced] Press ▲ ▼ key to select the data number.
4	Press COUNT CLEAR key.
5	[Copy Count Reset Screen by Parts to be Replaced] Press Yes key to reset the count.
6	Press PREVIOUS SCREEN key to end setting.

Note:
The right side of the limit value will be marked as "*" if the copy count exceeds its limit value.

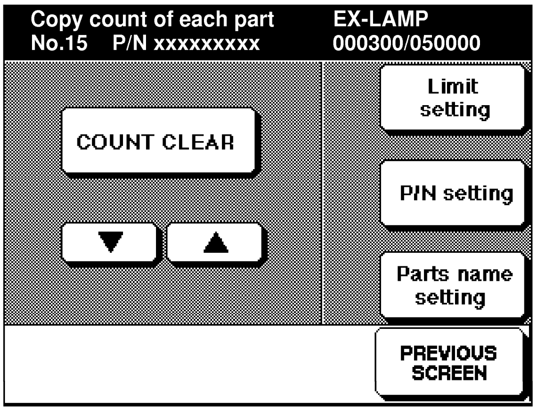
2. Copy count limit setting by parts to be replaced

Set new limit value for the copy count by parts to be replaced.

<Count Limit Selection>

Select 5 Parts counter in the 25 Mode Menu Screen to display Copy Count Screen by Parts to be Replaced as an initial screen. Select the limit setting here.

[Copy Count Screen by Parts to be Replaced]

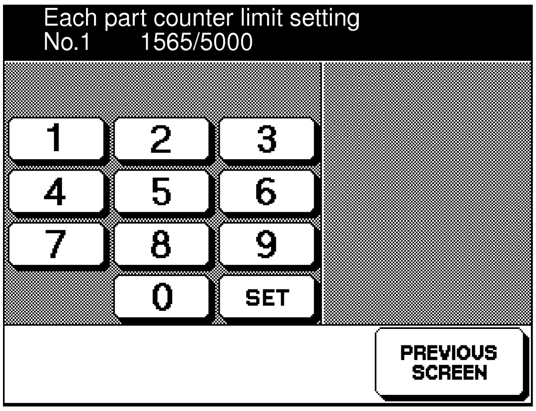


Copy count of each part EX-LAMP
No.15 P/N xxxxxxxxx 000300/050000

(1) Data number, count value then limit value are displayed on the second row of the message area.
(2) The data number can be changed by pressing ▲ ▼ key.
(3) Press and hold ▲ ▼ key to display next items continuously.
The count/limit value for the selected data No. will be displayed.
(4) Press Limit setting key to set the limit value.
Copy Count Limit Setting Screen by Parts to be Replaced will appear.

3. Count Limit Setting Method

[Copy Count Limit Setting Screen by Parts to be Replaced]



Each part counter limit setting
No.1 1565/5000

(1) Using the numeric keys on the screen, enter new limit value.

- Newly entered data will be displayed on the second row of the message area.
- The firstly entered number will be shifted to the left end.

(2) Press SET key to return to Copy Count Screen by Parts to be Replaced.

Note:

The screen will also return to Copy Count Screen by Parts to be Replaced if PREVIOUS SCREEN key is pressed without pressing SET key. In this case, no limit value will be changed.

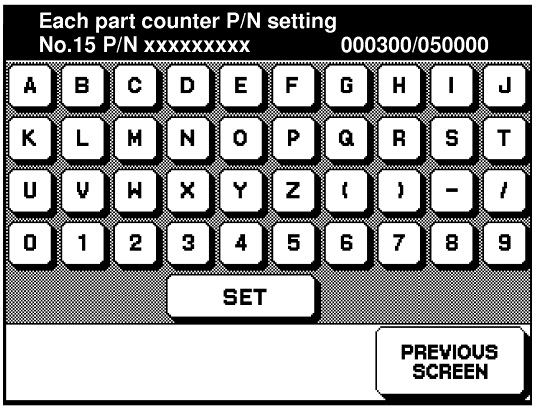
Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu Screen] Press 5 Parts counter.
3	[Copy Count Screen by Parts to be Replaced] Press ▲ ▼ key to select the data number.
4	Press Limit setting key.
5	[Copy Count Limit Setting Screen by Parts to be Replaced] Enter new limit value using the numeric keys.
6	Press SET key to execute.
7	Press PREVIOUS SCREEN key to end setting.

Note:

The right side of the limit value will be marked as "*" if the copy count exceeds its limit value.

4. Part Number Setting Method

[Part Number Setting Screen]



Each part counter P/N setting
No.15 P/N xxxxxxxxx 000300/050000

(1) Using the numeric and alphabet keys on the screen, enter new parts number (P/N).

- The input characters are displayed in the part number display area on the second row of the message display area.
- The display shifts one space from right to left each time a character is input.
- When 9 characters have been input, the character on the farthest left will be deleted each time an additional character is input.

(2) Press SET key to return to Copy Count Screen by Parts to be Replaced.

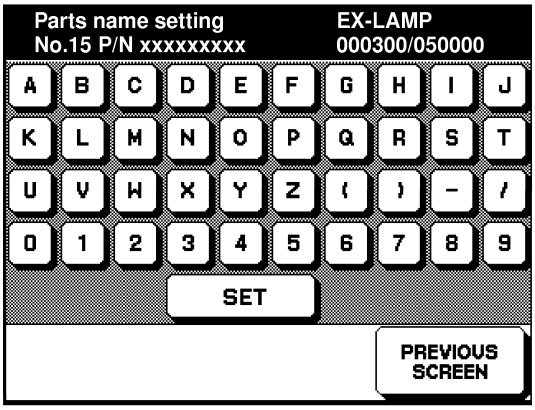
Note:

The screen will also return to Copy Count Screen by Parts to be Replaced if PREVIOUS SCREEN key is pressed without pressing SET key. In this case, no parts number will be changed.

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu Screen] Press 5 Parts counter.
3	[Copy Count Screen by Parts to be Replaced] Press ▲ ▼ key to select the data number.
4	Press P/N Setting key.
5	[Part Number Setting Screen] Use the numeric and alphabet keys to input the new part number (P/N).
6	Press SET key to enter the input part number.
7	Press PREVIOUS SCREEN key to end setting.

5. Part Name Setting Method

[Part Name Setting Screen]



Parts name setting EX-LAMP
No.15 P/N xxxxxxxxx 000300/050000

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
S
T
U
V
W
X
Y
Z
(
)
-
/
0
1
2
3
4
5
6
7
8
9
SET
PREVIOUS SCREEN

(1) Using the numeric and alphabet keys on the screen, enter new parts name.

- The input characters are displayed in the part name display area on the first row of the message display area.
- The display shifts one space from right to left each time a character is input.
- When 8 characters have been input, the character on the farthest left will be deleted each time an additional character is input.

(2) Press SET key to return to Copy Count Screen by Parts to be Replaced.

Note:

The screen will also return to Copy Count Screen by Parts to be Replaced if PREVIOUS SCREEN key is pressed without pressing SET key. In this case, no parts name will be changed.

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu Screen] Press 5 Parts counter.
3	[Copy Count Screen by Parts to be Replaced] Press ▲ ▼ key to select the data number.
4	Press Part Name Setting key.
5	[Part Name Setting Screen] Use the numerical keys to input the new part name.
6	Press SET key to enter the input part name.
7	Press PREVIOUS SCREEN key to end setting.

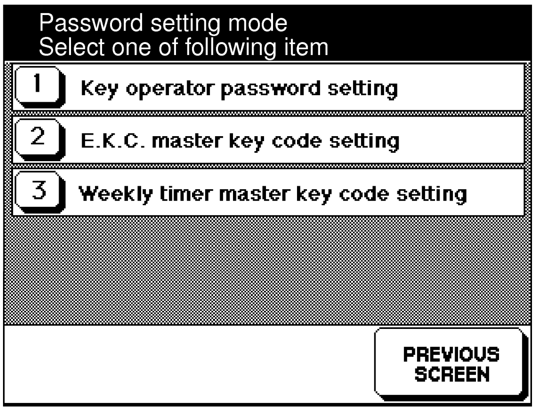
[8] Setting Key Operator Password

This function sets the password to enter the key operator mode.

1. Password setting screen selection

Select 6 Password setting in the 25 Mode Menu Screen to display Password Setting Menu Screen as an initial screen. In this screen, select the password to be set.

[Password Setting Menu Screen]



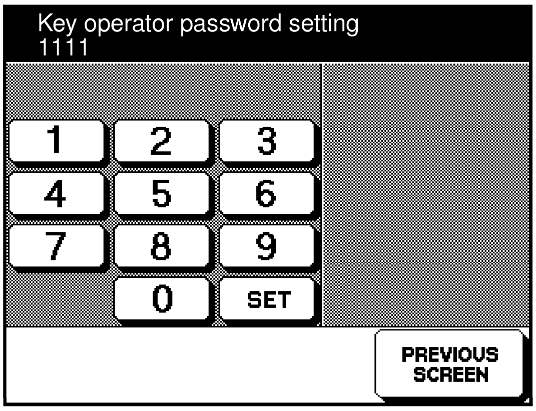
Password setting mode
Select one of following item

1 Key operator password setting
2 E.K.C. master key code setting
3 Weekly timer master key code setting
PREVIOUS SCREEN

2. Setting method

Select 1 Key operator password setting in Password Setting Menu Screen.
Key Operator Password Setting Screen will appear.

[Key Operator Password Setting Screen]



Key operator password setting
1111

1
2
3
4
5
6
7
8
9
0
SET
PREVIOUS SCREEN

(1) Using the numeric keys on the screen, enter 4-digit new password.

- Newly entered number will be displayed on the second row of the message area.
- The firstly entered number will be shifted to the left end.

(2) Press SET key to execute.

(3) The screen will return to Password Setting Menu Screen if PREVIOUS SCREEN key is pressed without pressing SET key. In this case, no password will be changed.

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu Screen] Press 6 Password setting.
3	[Password Setting Menu Screen] Press 1 Key operator password setting.
4	[Key Operator Password Setting Screen] Using the numeric keys on the screen, enter 4-digit new password.
5	Press SET key to execute.
6	Press PREVIOUS SCREEN key to end setting.

Note:

Set the password to "0000" to enter the key operator mode without any password. In other words, without displaying the field for entering password, Key Operator Screen will appear when the key operator mode is started.

[9] Setting EKC Master Key Code

This function sets EKC master key code.

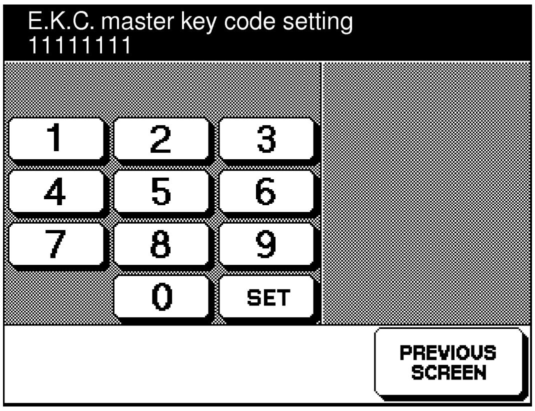
1. Password setting screen selection

Select 6 Password setting in the 25 Mode Menu Screen to display Password Setting Menu Screen as an initial screen. In this screen, select the password to be set.

2. Setting method

Select 2 EKC master key code setting in Password Setting Menu Screen.
EKC Master Key Code Setting Screen will appear.

[EKC Master Key Code Setting Screen]



E.K.C. master key code setting
11111111

(1) Using the numeric keys on the screen, enter 8-digit new EKC master key code.
- Newly entered number will be displayed on the second row of the message area.
- The firstly entered number will be shifted to the left end.

(2) Press SET key to execute.
(3) The screen will return to Password Setting Menu Screen if PREVIOUS SCREEN key is pressed without pressing SET key. In this case, no EKC master key code will be changed.

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu Screen] Press 6 Password setting.
3	[Password Setting Menu Screen] Press 2 EKC master key code setting.
4	[EKC Master Key Code Setting Screen] Using the numeric keys on the screen, enter 8-digit new EKC master key code.
5	Press SET key to execute.
6	Press PREVIOUS SCREEN key to end setting.

[10] Setting Weekly Timer Master Key Code

This function sets the weekly timer master key code required for entering the various weekly timer set mode.

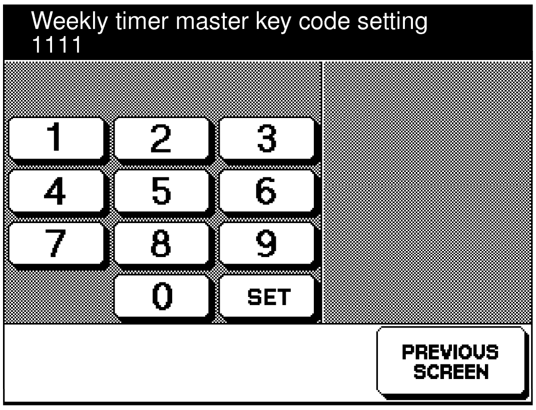
1. Password setting screen selection

Select 6 Password setting in the 25 Mode Menu Screen to display Password Setting Menu Screen as an initial screen. In this screen, select the password to be set.

2. Setting weekly timer master key code

Select 3 Weekly timer master key code setting in Password Setting Menu Screen.
Weekly Timer Master Key Code Setting Screen will appear.

[Weekly Timer Master Key Code Setting Screen]



Weekly timer master key code setting
1111

(1) Using the numeric keys on the screen, enter 4-digit new weekly timer master key code.
- Newly entered number will be displayed on the second row of the message area.
- The firstly entered number will be shifted to the left end.

(2) Press SET key to execute.
(3) The screen will return to Password Setting Menu Screen if PREVIOUS SCREEN key is pressed without pressing SET key. In this case, no weekly timer master key code will be changed.

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu Screen] Press 6 Password setting.
3	[Password Setting Menu Screen] Press 3 Weekly timer master key code setting.
4	[Weekly Timer Master Key Code Setting Screen] Using the numeric keys on the screen, enter 4-digit new weekly timer master key code.
5	Press SET key to execute.
6	Press PREVIOUS SCREEN key to end setting.

Note:
Set the password to "0000" to enter the weekly timer mode without any password.
In other words, without displaying Weekly Timer Master Key Code Entry Screen, Weekly Timer Setting Screen will appear when the weekly timer mode is started.

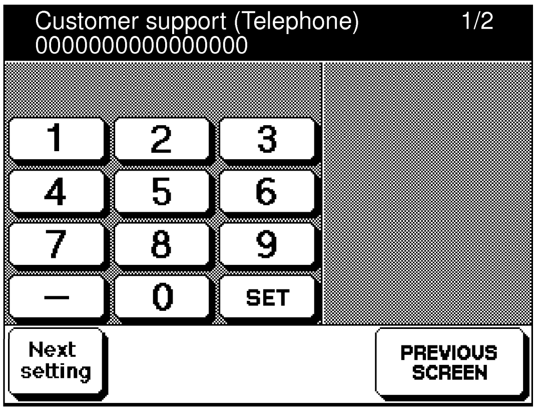
[11] Specifying Phone Number of Service Center

This function specifies the phone and fax numbers of the service center which is indicated in the screen if the service call is issued.
These numbers are also indicated as "Contact Number of Service Center" of the basic help screen in the user's display.
This function is not related with KRDS functions. It is designed only for indicating the data on the screen.

1. Specifying phone and fax number of service center

Select 7 Telephone number setting in the 25 Mode Menu Screen. Service Center Number Setting Screen will appear.

[Service Center Number Setting Screen]



Customer support (Telephone) 1/2
0000000000000000

(1) Specifying phone number of service center

a. Using the numeric keys on the screen, enter 16-digit number.
b. This number must be 16 digits. Arrange the number with hyphenation if it is less than 16 digits.
c. Newly entered number and hyphen (if any) will be displayed on the second row of the message area.
d. The firstly entered number will be shifted to the left end.
e. Press SET key to execute.
f. Select Next setting key to specify the fax number.
g. The new phone number will not be effective if Next setting key is pressed without pressing SET key.

(2) Specifying fax number of service center

a. After entering the phone number, press SET key and select Next setting key to move to the fax number entry screen. Enter new fax number according to the same procedure as that for the phone number.
b. Press SET key to execute.
Select Next setting key again to return to the phone number entry screen.

Select PREVIOUS SCREEN key to end setting the phone number and return to the 25 Mode Menu Screen.

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu Screen] Press 7 Phone number of service center setting.
3	[Service Center Number Setting Screen] Using the numeric keys on the screen, enter 16-digit new phone number and hyphen (if necessary) and press SET key.
4	Press Next Setting key to move to the fax number entry screen.
5	Using the numeric keys on the screen, enter 16-digit new fax number and hyphen (if necessary) and press SET key.
6	Press PREVIOUS SCREEN key to end setting.

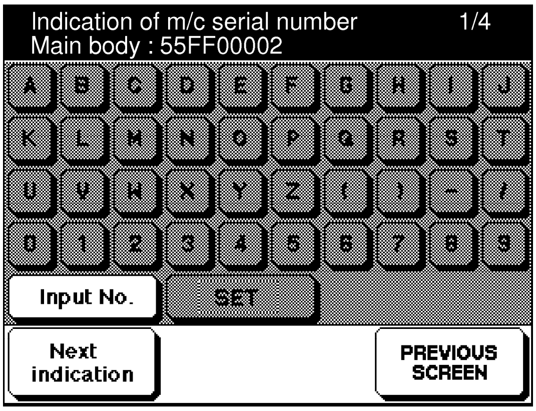
[12] Setting and Displaying Serial Number

This function is used to display, set and change the serial number of the main machine or optional machines.
The serial number can be read from KRDS.

1. Serial number display procedure

Select 8 Indication of m/c serial number in the 25 Mode Menu Screen. Serial Number Display Screen will appear.
The name of the main machine or optional machine will be displayed on the first row of the message area.
On the second row, the corresponding serial number for each machine will be displayed.
Pressing Next indication key enables to proceed to the next item such as main machine → Option tray → RADF → Finisher.

[Serial Number Display Screen]



Indication of m/c serial number 1/4
Main body : 55FF00002

2. Setting and changing serial number

Press Input No. key in Serial Number Display Screen to move to Serial Number Setting Screen.
Using the numeric and alphabet keys on the screen, enter 9-digit number and alphabet.
The firstly entered number or alphabet will be shifted to the left end.
Press SET key to execute and return to Serial Number Display Screen.
The screen also returns to Serial Number Display Screen if SET key is pressed without entering any number or alphabet. In this case, no data will be changed.
Select PREVIOUS SCREEN key to simply return to 25 Mode Menu Screen.

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu Screen] Press 8 Indication of m/c serial number
3	[Serial Number Display Screen] Check the number shown in the message area. Press Next indication key to move to the next item.
4	Press Input No. key to change the number.
5	Using the numeric keys on the screen, enter 9-digit serial number and press SET key.
6	Press PREVIOUS SCREEN key to end setting.

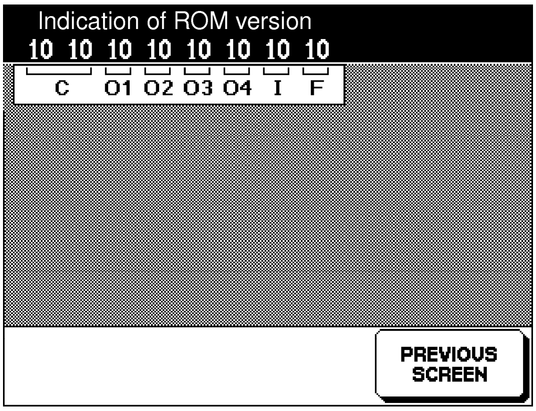
[13] Displaying ROM Version

This function is used to display ROM version mounted to the machine.

1. ROM version view method

Select 9 Indication of ROM version in the 25 Mode Menu Screen. ROM Version Display Screen will appear.
The ROM version of each of the main body control board (CB), the operation panel (OB1), the image processing board (IPB), and the RADF control board (DFCB) is displayed on the second row of the message display area.

[ROM Version Display Screen]



Indication of ROM version

10 10 10 10 10 10 10 10

Select PREVIOUS SCREEN key to end this screen and return to 25 Mode Menu Screen.

[14] Setting KRDS

This function selects whether to set KRDS or store data in the memory card. This selection is not available unless the machine is equipped with either KRDS or memory card.

KRDS enables to call the host computer from the copier regularly or when any error occurs; query the various data on the copier; and change the data from the host computer.

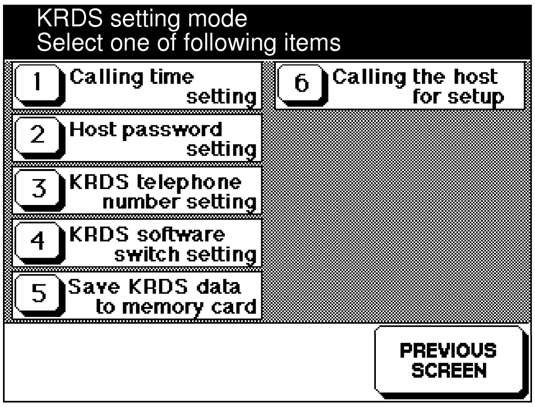
KRDS can execute the above functions for the following data:

a. Data on the copier's status such as total and PM count.
b. Data on the frequency of the partial copier such as RADF paper passage count.
c. Data on the copier's error status such as JAM/SC (F) occurrence point and count.
d. Data on the various adjustments

To use KRDS, set up as follows:

1. Initialize KRDS memory.
2. Set type of modem and line.
3. Enter host password.
4. Set phone number.

[KRDS Setting Screen]



KRDS setting mode
Select one of following items

1 Calling time setting
2 Host password setting
3 KRDS telephone number setting
4 KRDS software switch setting
5 Save KRDS data to memory card
6 Calling the host for setup
PREVIOUS SCREEN

[15] KRDS Set Up

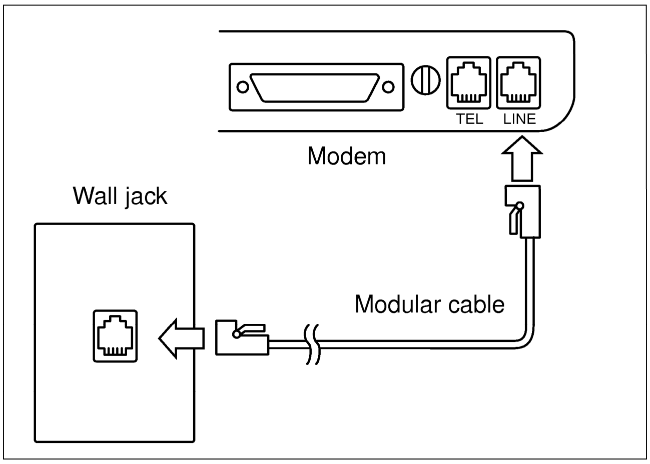
1. KRDS set up item

KRDS set up method

Step	Operation
1	Setting the KRDS connection recognition (25 mode → [1] Software SW setting) Set copier software DIPSW 12-6 (KRDS connection recognition) to "1".
2 △2	Turn off the modem to connect the copier using a modem cable and wall jack using a modular cable to the modem. (See *5)
3	Initialize KRDS memory. (47 mode → [1][5][P][9][8][P] → Copy button ON)
4	Set KRDS software SW. (25 mode → [10] KRDS setting → [4] KRDS software switch setting) (Select type of modem and dial mode.) Select type of modem from the bit pattern 0 to 6 of KRDS software SW No.1 and dial mode from the bit pattern 7.
5	Host Password Setting. (25 mode → [10] KRDS setting → [2] Host password setting) (See *2, *3)
6	KRDS Phone Number Setting. (25 mode → [10] KRDS setting → [3] KRDS telephone number setting) (See *4.)
7	Turn off the main switch of the copier.
8	Plug the outlet in and out.
9	Turn on the modem.
10	Turn on the main switch of the copier.

Step	Operation
11	Perform KRDS set up calling (25 mode → 10 KRDS setting → 6 Calling the host for setup)
12	Press the Start Key to start set up.
13	Check the finishing of set up. (25 mode → 10 KRDS setting → 4 KRDS software switch setting) Completes if the data on the switch No. 33 and the bit No. 0 indicates "1" (finished).
14	Turn off the main switch of the copier.

*1: Time is set to Japanese time prior to shipping.
*2: Host password must be 5-digit.
*3: Host password 1 must be specified.
*4: For both the copier and the host side, phone number 1 must be specified.
*5: Refer to the specifications for connecting with the modular cable.



2. Setting the KRDS connection recognition

(1) Insert the power supply of the copier into the plug socket. (Keep the main switch off.)
(2) Turn on the main switch while holding both the copy quantity setting button 2 and 5 simultaneously.
(3) Select 1 Software SW setting in the 25 Mode Menu Screen.
(4) Select the bit No.6 of the switch No.12, and then press the ON key
ON : KRDS connect
OFF : KRDS not connected

Caution: If the copier software DIPSW 12-6 (KRDS recognition) is not selected to "1", the menu of the KRDS can not be selected.

3. Initializing KRDS memory

(1) Turn off the main switch of the copier.
(2) Turn on the main switch while holding both the copy quantity setting button 4 and 7 simultaneously.
(3) Press the start print button after pressing the copy quantity setting button 1, 5 and P button, then 9, 8, finally P button again.

I/O check mode
<15 - 98> IN: --OUT : ON

(4) "NOW" indication will be changed to "FIN" on the message display.
(5) Turn off the main switch of the copier.

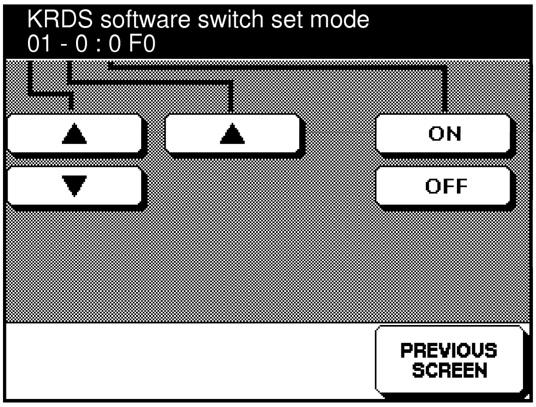
4. Setting KRDS software SW

This function sets KRDS software switch.

Caution:

Set the software switch while checking the switch and bit number since the memory is rewritten every time the bit data (1 or 0) is changed.
Any bit data that has been incorrectly changed must be returned to the original data.

[KRDS Software SW Setting Screen]



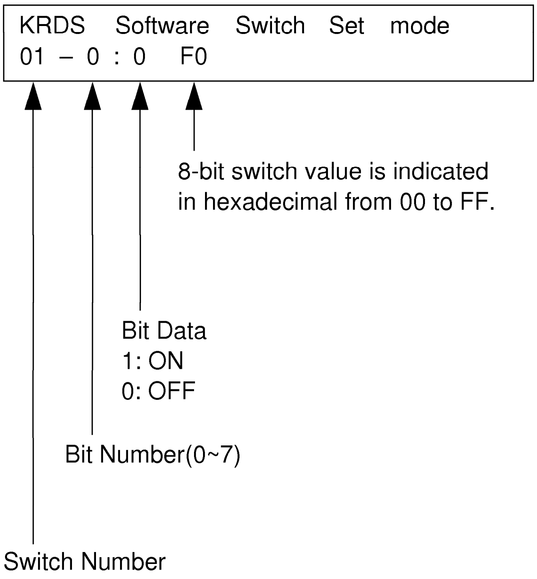
KRDS software switch set mode
01 - 0 : 0 F0

▲
▲
ON
▼
OFF
PREVIOUS SCREEN

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu Screen] Press ⑬ KRDS setting.
3	[KRDS Setting Screen] Press ④ KRDS software switch setting.
4	[KRDS Software SW Setting Screen] Use ▲ or ▼ key to set the switch number. (See *1.)
5	Use ▲ key to set the bit number. (See *1.)
6	Press ON or OFF key to set the bit data.
7	Press PREVIOUS SCREEN key to end setting.

***1:**

- The bit data will be written in the non-volatile RAM every time it is changed.
- The numbers shown in the message area are defined as follows:



KRDS Software Switch Set mode
01 – 0 : 0 F0
8-bit switch value is indicated in hexadecimal from 00 to FF.
Bit Data
1: ON
0: OFF
Bit Number(0~7)
Switch Number

For the function of each switch, refer to "List of KRDS Software DIP Switch".

5. Setting type of modem and line

- Using the switch No. 01, enter the modem and line data into the bit 0 to 7, referring to the following table.

△2 <Type of line: Pulse>

Bit No. Type of Modem	7	6	5	4	3	2	1	0	Hexad-ecimal
AT&FE0Q0V1X0S0 =1&S0	0	0	0	0	0	0	0	1	01
AT&FE0Q0V1X0S0 =1&S0&D2&C1	0	0	0	0	0	0	1	0	02
AT&FE0Q0V1X0S0 =1&S0%E0	0	0	0	0	0	0	1	1	03
AT&FE0Q0V1X0S0 =1&S0&D2	0	0	0	0	0	1	0	0	04
AT&FE0Q0V1X0S0 =1&S0&M5	0	0	0	0	0	1	0	1	05

△2 <Type of line: Tone>

Bit No. Type of Modem	7	6	5	4	3	2	1	0	Hexad-ecimal
AT&FE0Q0V1X0S0 =1&S0	1	0	0	0	0	0	0	1	81
AT&FE0Q0V1X0S0 =1&S0&D2&C1	1	0	0	0	0	0	1	0	82
AT&FE0Q0V1X0S0 =1&S0%E0	1	0	0	0	0	0	1	1	83
AT&FE0Q0V1X0S0 =1&S0&D2	1	0	0	0	0	1	0	0	84
AT&FE0Q0V1X0S0 =1&S0&M5	1	0	0	0	0	1	0	1	85

Example:

Enter 00000011 for all of the bit No.7 - 0 if the type of the modem command is AT&FE0Q0V1X0S0 =1&S0%E0 and the type of line is Pulse. The hexadecimal value is indicated as 03. Check if the hexadecimal value corresponds with the specified modem according to the above table.

NOTE:

* About the line type selection SW (KRDSdipSW1-7):

- In default setting, the type of line is to be selected by the line type automatic recognition function of the modem. (KRDSdipSW38-0=1)
  When this switch is set to 1 (on), KRDSdipSW1-7 which is selection switch between pulse and tone does not function. It is necessary to set KRDSdipSW38-0 to 0 to make this switch effective.
- Perform the setting of KRDSdipSW1-7 in accordance with the kind of a line to use if the modem used does not provide the line type automatic recognition function.

<List of KRDS Software DIP SW>

☐ Initial set value

No.		Function	MSB	Bit Pattern						LSB	Description	Initial Value (Hexadecimal)
byte	bit		7	6	5	4	3	2	1	0		
1 △2	0~6	Select modem		0	0	0	0	0	0	0	No setting (No data is sent to modem.)	81
				0	0	0	0	0	0	1	AT&FE0Q0V1X0S0=1&S0	
				0	0	0	0	0	1	0	AT&FE0Q0V1X0S0=1&S0&D2&C1	
				0	0	0	0	0	1	1	AT&FE0Q0V1X0S0=1&S0%E0	
				0	0	0	0	1	0	0	AT&FE0Q0V1X0S0=1&S0&D2	
				0	0	0	0	1	0	1	AT&FE0Q0V1X0S0=1&S0&M5	
				1	1	1	1	1	1	1	Manual setting (3 to 24 byte data is sent to modem.)	
	7	Dial mode	0								Pulse dial	
			1								Tone dial	
2	0	Data character length								0	7 bit	61
										1	8 bit	
	1~2	Parity and stop bit						0	0		No parity; stop bit 1	
								0	1		Even number of parity; stop bit 1	
								1	0		Odd number of parity; stop bit 1	
								1	1		No parity; stop bit 2	
	3	Reserve					don't care					
	4~6	Baud rate, phone line interface		0	0	1					300 bps	
				0	1	1					1200 bps	
				1	0	0					2400 bps	
				1	0	1					4800 bps	
				1	1	0					9600 bps	
	7	Reserve	don't care									
3	0	Local echo								0	No setting	D7
										1	E0	
	1	Result code							0		No setting	
									1		Q0: Exist	
	2	Result code form						0			No setting	
								1			V1: Word	
	3	Set DCD signal operation					0				No setting	
							1				&C1: ON only when detecting the carrier	
	4~5	Set DSR signal operation			0	0					No setting	
					0	1					&S0: Keep ON	
					1	0					&S1: ON during online	
					1	1					&S2	

MC-Service

No.		Function	MSB	Bit Pattern						LSB	Description	Initial Value (Hexadecimal)
byte	bit		7	6	5	4	3	2	1	0		
3	6	Check DSR signal		0							off	D7
				1							on	
	7	Check DCD signal	0								off	
			1								on	
4	0~1	Set DTR signal operation							0	0	No setting	10
									0	1	&D0	
									1	0	&D1	
									1	1	&D2	
	2~3	Speaker control					0	0			No setting	
							0	1			M0: Keep ON	
							1	0			M1: ON until communication starts	
							1	1			M2	
	4~6	Display speed when completed connection and detect dial/busy tone		0	0	0					No setting	
				0	0	1					X0: No indication of communication speed	
				0	1	0					X1: Indication of communication speed	
				0	1	1					X2: Indication of communication speed; Detect dial tone	
				1	0	0					X3: Indication of communication speed; Detect busy tone	
				1	0	1					X4: Indication of communication speed; Detect dial and busy tone	
				1	1	0					non	
				1	1	1					non	
	7	Reset modem (This is set prior to shipping.)	0								No setting	
			1								&F: This is set prior to shipping.	
5	0~7	Arbitrarily command registration area 1 (ASCII data)									Send ASCII data specified in this area to modem	00
6	0~7											
7	0~7											
8	0~7	Arbitrarily command registration area 2 (ASCII data)										
9	0~7											
10	0~7											
11	0~7	Arbitrarily command registration area 3 (ASCII data)										
12	0~7											
13	0~7											
14	0~7	Arbitrarily command registration area 4 (ASCII data)										
15	0~7											
16	0~7											
17	0	Set S register (bit 0 - 7)								0	No setting	01
		S0: Automatic receive ring count								1	S0=: Effective data	
	1	S6: Wait time from off hook to dial start							0		No setting	
									1		S6=: Effective data	
	2	S7: Off hook limit timer						0			No setting	
								1			S7=: Effective data	

No.		Function	MSB	Bit Pattern						LSB	Description	Initial Value (Hexadecimal)
byte	bit		7	6	5	4	3	2	1	0		
17 △2	3	S8: Dial stop time (sec.)	▨	▨	▨	▨	0	▨	▨	▨	No setting	01
			▨	▨	▨	▨	1	▨	▨	▨	S8=: Effective data	
	4	S9: Carrier recognize time	▨	▨	▨	0	▨	▨	▨	▨	No setting	
			▨	▨	▨	1	▨	▨	▨	▨	S9=: Effective data	
	5	S10: Allowable carrier stop time	▨	▨	0	▨	▨	▨	▨	▨	No setting	
			▨	▨	1	▨	▨	▨	▨	▨	S10=: Effective data	
	6	S11	▨	0	▨	▨	▨	▨	▨	▨	No setting	
			▨	1	▨	▨	▨	▨	▨	▨	S11=: Effective data	
	7	Reserve	don't care	▨	▨	▨	▨	▨	▨	▨		
18		S0 data	00~FFH								01H (1)	01
19		S6 data	00~FFH								02H (2)	02
20		S7 data	00~FFH								1DH (29)	ID
21		S8 data	00~FFH								02H (2)	02
22		S9 data	00~FFH								06H (6)	06
23		S10 data	00~FFH								0EH (14)	0E
24		S11 data	00~FFH								5FH (95)	5F
25		Timer 1	00~FFH								20H (32) × 1sec	20
26		Timer 2	00~FFH								40H (64) × 1sec	40
27		Timer 3	00~FFH								0AH (10) × 100ms	0A
28		Timer 4	00~FFH								20H (32) × 100ms	20
29		Timer 5	00~FFH								1EH (30) × 1sec	1E
30		Retry data; Timer 6	00~FFH								FFH (255) × 5ms	FF
31	0	Call when SC error occurs	▨	▨	▨	▨	▨	▨	▨	0	disable	7F
			▨	▨	▨	▨	▨	▨	▨	1	enable	
	1	Call specify date	▨	▨	▨	▨	▨	▨	0	▨	disable	
			▨	▨	▨	▨	▨	▨	1	▨	enable	
	2	Call parts replace date	▨	▨	▨	▨	▨	0	▨	▨	disable	
			▨	▨	▨	▨	▨	1	▨	▨	enable	
	3	Call drum replace date	▨	▨	▨	▨	0	▨	▨	▨	disable	
			▨	▨	▨	▨	1	▨	▨	▨	enable	
	4	Call regular service date	▨	▨	▨	0	▨	▨	▨	▨	disable	
			▨	▨	▨	1	▨	▨	▨	▨	enable	
	5		▨	▨	0	▨	▨	▨	▨	▨		
			▨	▨	1	▨	▨	▨	▨	▨		
	6	Call regular transmit date	▨	0	▨	▨	▨	▨	▨	▨	disable	
			▨	1	▨	▨	▨	▨	▨	▨	enable	
	7	Select regular transmit (Time and count)	0	▨	▨	▨	▨	▨	▨	▨	time	
			1	▨	▨	▨	▨	▨	▨	▨	counter	

No.		Function	MSB	Bit pattern						LSB	Description	Default value
byte	bit		7	6	5	4	3	2	1	0		(Hexadecimal)
32	0	Call when optional configuration is changed								0	disable	00
										1	enable	
	1	Report of toner replenishment							0		disable	
									1		enable	
	2	Report of JAM occur frequently						0			disable	
								1			enable	
	3 - 7	Reserve	Don't care									
33	0	Set up flag								0	not yet	0A
										1	finished	
	1 - 2	Radial interval						0	0		1 min.	
								0	1		3 min.	
								1	0		5 min.	
								1	1		7 min.	
	3 - 4	Radial count				0	0				0	
						0	1				5	
						1	0				10	
						1	1				No limit	
	5 - 6	Reserve		Don't care								
	7	Line feed control (when initializing modem)	0								CR/LF: LF exist	
			1								CR: No LF	
34	0 - 1	Call JAM date (main body) Valid copy quantity							0	0	Copy quantity: level 1	55
									0	1	Copy quantity: level 2	
									1	0	Copy quantity: level 3	
									1	1	Copy quantity: level 4	
	2 - 3	Call ADF JAM date Valid original feed quantity					0	0			Original feed quantity: level 1	
							0	1			Original feed quantity: level 2	
							1	0			Original feed quantity: level 3	
							1	1			Original feed quantity: level 4	
	4 - 5	Call JAM date MCBJ setting			0	0					MCBJ: level 1	
					0	1					MCBJ: level 2	
					1	0					MCBJ: level 3	
					1	1					MCBJ: level 4	
	6 - 7	Call JAM date MOBJ setting	0	0							MOBJ: level 1	
			0	1							MOBJ: level 2	
			1	0							MOBJ: level 3	
			1	1							MOBJ: level 4	
35		Reserve										00
36		Reserve										
37		Reserve										

No.		Function	MSB	Bit pattern						LSB	Description	Default value (Hexadecimal)
byte	bit		7	6	5	4	3	2	1	0		
38	0	Line type automatic recognition								0	off	01
										1	on	
	1 - 5	Reserve			Don't care							
△2	6	PM limit data length		0							Upper 2-digit fixed (for host)	
				1							All 6-digit (for host)	
	7	Regular transmit communication Sequence control	0								Call back communication	
			1								No call back communication	
39	0	Memory data error FJ0								0	copy enable	00
										1	copy disable	
	1	Communication error between copier and KRDS FJ1							0		copy enable	
									1		copy disable	
	2	RS-232 line error PJ2						0			copy enable	
								1			copy disable	
	3	Modem AT command error FJ3					0				copy enable	
							1				copy disable	
	4	Communication error between host and KRDS FJ4				0					copy enable	
						1					copy disable	
△2	5	Force copy stop* PJ5			0						copy enable	
					1						copy disable	
	6 -7	Reserve	Don't care									
40 △2	0	Force copy stop control*								0	disable	00
										1	enable	
	1	Frequent jam detection data clear							0		disable	
									1		enable	
	2 - 7	Reserve	Don't care									

* Force copy stop will be excecuted only when the both switches (39-5 and 40-0) are set to 1.

6. Setting host password

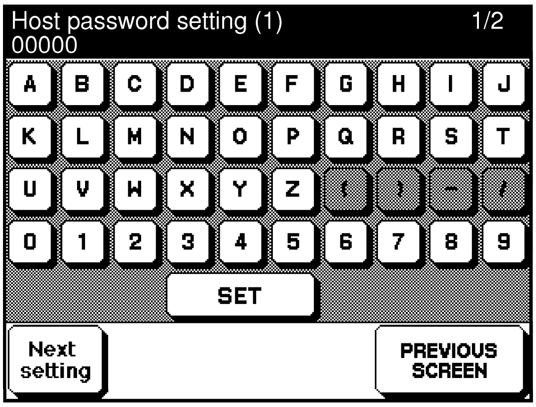
This function sets host password.

- Up to 4 types can be set as host passwords.

(1) Screen selection

Select [10] KRDS setting in the 25 Mode Menu Screen to display KRDS Setting Screen as an initial screen.
Then select [2] Host password setting to display Host Password Setting Screen.

[Host Password Setting Screen]



Host password setting (1) 1/2
00000

(2) Setting method

a. Two patterns can be used to set KRDS host password. The entry screen, screen contents and setting method for each pattern are all the same. Each message, however, is different.
b. Press [PREVIOUS SCREEN] key to change the screen.
c. Enter the host password, 5-digit number, with the numeric and alphabet keys on the screen and press [SET] key.
d. The firstly entered number or alphabet will be shifted to the left end.
e. This password has been set to 00000 prior to shipping.
f. The screen will return to Call Setting Screen if [PREVIOUS SCREEN] key is pressed without pressing [SET] key. In this case, no password will be changed.
g. Press [SET] key then [PREVIOUS SCREEN] key to set the entered password. The screen will return to KRDS Setting Screen.

*: • Note that the host password setting (1) must be performed.
  • Refer to [16] Call setting menu mode (Arbitrary) for setting "Host 2".

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu Screen] Press [10] KRDS setting.
3	[KRDS Setting Screen] Press [2] Host password setting.
4	[Host Password Setting Screen] Enter password consisting of number and alphabet.
5	Press [Next Setting] key to change the screen (up to 2 patterns).
6	Press [SET] key.
7	Press [PREVIOUS SCREEN] key to end setting.

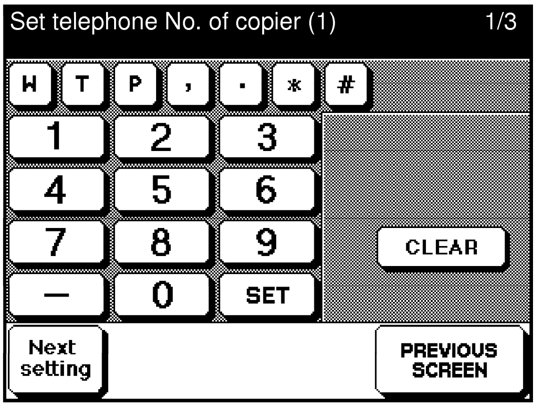
7. Setting KRDS telephone number

This function sets copier for KRDS and host telephone number.

(1) Screen selection

Select [10] KRDS setting in the 25 Mode Menu Screen to display KRDS Setting Screen as an initial screen.
Then select [3] KRDS telephone number setting to display KRDS Phone Number Setting Screen.

[KRDS Phone Number Setting Screen]



Set telephone No. of copier (1) 1/3

(2) Setting method

a. Three patterns can be used to set KRDS phone number. The entry screen, screen contents and setting method for each pattern are all the same. Each screen, however, is different.

b. Press Next setting key to select one of three screens.

c. Enter the phone number, 20-digit or less number, with the numeric and alphabet keys on the screen and press SET key. If more than 20 digits are entered, the numbers will shift from the right to the left side to keep 20 digits.

d. To re-enter the phone number, press CLEAR key to clear the data then enter the correct number.

e. No data has been set for the second row of the message area prior to shipping.

△2 f. The buttons except the numeric keys are defined as follows:

, Pause: Wait temporarily for self-dial feed

W Wait: Wait for dial tone such as asynchronous, etc. (excluding sound guidance).

T Tone Dial: Indicate tone dial after this symbol

P Pulse Dial: Indicate pulse dial after this symbol

- Symbol to divide numbers: (This symbol is ignored when dialing.)

· , * , # : Use these keys as required.

g. The screen will return to Call Setting Screen if PREVIOUS SCREEN key is pressed without pressing SET key. In this case, no phone number will be changed.

h. Press SET key then PREVIOUS SCREEN key to set the entered number. The screen will return to KRDS Setting Screen.

*: • Note that the copier phone number setting (1) and host phone number setting (1) must be performed.

• Refer to [16] Call setting menu mode (Arbitrary) for setting "Host 2".

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu Screen] Press 10 KRDS setting.
3	[KRDS Setting Screen] Press 3 KRDS telephone number setting.
4	[KRDS Telephone Number Setting Screen] Enter phone 20-digit number using the numeric key.
5	Press Next Setting key to change the screen (up to 3 patterns).
6	Press SET key.
7	Press PREVIOUS SCREEN key to end setting.

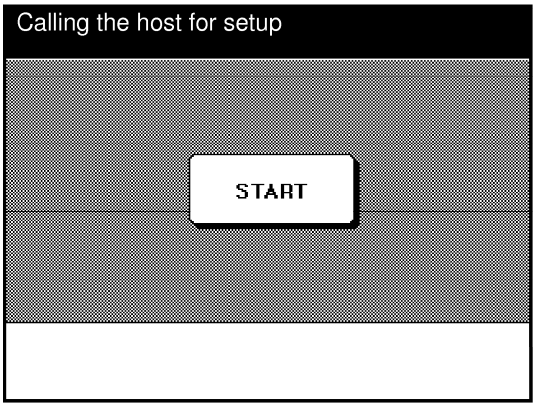
8. Calling KRDS set up

<Auto set up>

In the host call setting, call the designated host computer in the set date and time, and transmit each data of the copier. Refer to the separate KRDS Host Application Manual for details of the data being handled.

(1) Screen selection
Select 10 KRDS setting in the 25 Mode Menu Screen to display KRDS Setting Screen.
Then select 6 Call KRDS set up to display KRDS Set Up Call Screen.

[KRDS Set Up Call Screen]



Caution: If the KRDS software DIPSW 33-0 (Set up flag) is not selected to "0" (not yet). The KRDS setup calling screen can not be selected.

(2) Setting method
a. Press START key in KRDS Set Up Call Screen.
(a) Communication message

Calling the host for setup
Communicating

(b) Completion message

Calling the host for setup
Communication completed

b. Turn off the power if no completion message is displayed in ten minutes.
Check on the host phone number, cable connection, etc. then move to KRDS Set Up Screen again to press START key.
c. Turn off the power to end the operation.

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu Screen] Press the 10 KRDS setting.
3	[KRDS Setting Screen] Press the 4 KRDS software switch setting.
4	[KRDS Software Switch Setting Screen] Use the ▲ or ▼ key to select the switch number to “33” and bit number “0”.
5	Check that bit data indicates “0”. If not, set to “0” to press the OFF key.
6	Press the PREVIOUS SCREEN key to return to the KRDS Setting Screen.
7	[KRDS Setting Screen] Press the 6 Calling the host set up.
8	[Calling the Host for Setup Screen] Press the START key. Check the message on the screen.
9	Turn off the power to end the operation.

- How to confirm the completion of setup

Confirm the data at bit No. 0 of address 33 in reference to “4. Setting KRDS software switch”.
If “0”, setup is not completed.
If “1”, setup is completed.

<Manual set up>

This copier machine can be set up manually, other than the automatical setup as explained above. (The setup is effective when both the copier and the host have completed the setup action.)

- Operation for the copier machine

1. Switch on the power of modem.
2. Set the address No. 33 as referring to “4. Setting KRDS software switch”.
3. Change the data of bit No. 0 from 0 to 1.
   0: Setup not completed
   1: Setup completed
4. Establish the changed data by pressing the copy button.
5. Switch off the power of main body.

- Operation for the host computer

For the operation of the host computer, refer to the KRDS Host Application Administrator’s Manual.

[16] Call setting menu mode (Arbitrary)

Transmit the serial number and telephone number data of the copier to the KRDS host computer for automatic registration.

Caution:

This Host call setting always sets to calling to “Host 2”. Therefore, setting of the “Host 2” telephone number and Host password must be needed in advance.

1. Setting designated date calling setting mode

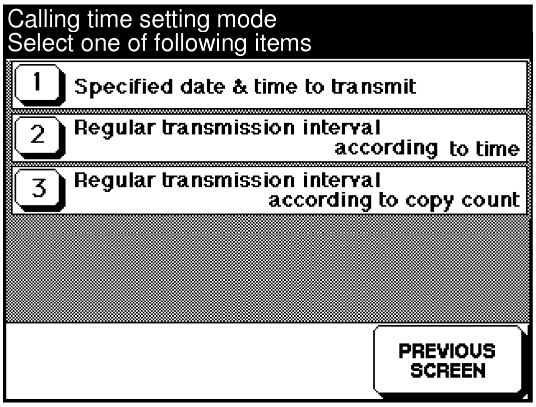
This function sets designated date calling.

a. Screen selection

Select 10 KRDS setting in the 25 Mode Menu Screen to display KRDS Setting Screen as an initial screen.

Then select 1 Calling time setting to display Call Setting Screen.

[Call Setting Screen]



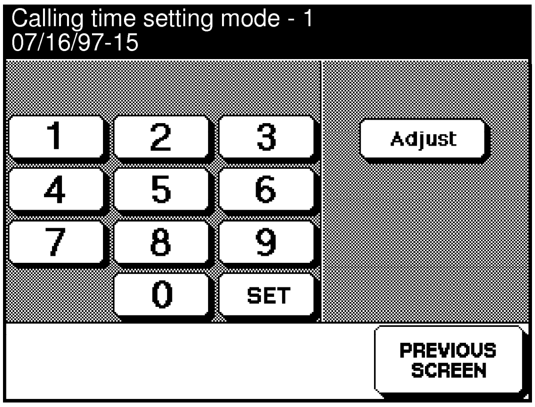
Calling time setting mode
Select one of following items

1 Specified date & time to transmit
2 Regular transmission interval according to time
3 Regular transmission interval according to copy count
PREVIOUS SCREEN

(a) Select "Specified date & time to transmit" to display designed date calling screen.

(b) Press PREVIOUS SCREEN key to exit Call Setting Screen and return to 25 Mode Menu Screen.

[Designed date calling]



Calling time setting mode - 1
07/16/97-15

b. Mode selection

(a) Press Adjust key and enter year, month, day and time using the numeric key.

- The numeric keys and SET key are not available unless Adjust key is pressed.

(b) Enter the year, month, day and time as follows:

- The year is entered by inputting the last 2 digits of the year. (Example: 1996 is entered as 96.)
- The month and day are entered by inputting 2-digit number. (Example: 1 is entered as 01.)
- The time is entered using 24 hour clock. (Example: 1:00p.m. is entered as 13.)
- Example:
  at 1:00 p.m. of January 15, 1996 -> 96/01/15-13

(c) Press SET key every time data for one item is entered and check the entered data.

(d) The screen will return to Call Setting Screen if PREVIOUS SCREEN key is pressed without pressing SET key. In this case, no entered data will be changed.

(e) Press SET key then PREVIOUS SCREEN key to end setting. The screen will return to Call Setting Screen.

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu Screen] Press 10 KRDS setting.
3	[KRDS Setting Screen] Press 1 Host call setting.
4	[Call Setting Screen] Press 1 Select "Specified date & time to transmit".
5	[Specified Data & Time To Transmit] Press Adjust key.
6	Using the numeric key on the screen, enter "year" and press SET key.
7	Using the numeric key on the screen, enter "month" and press SET key.
8	Using the numeric key on the screen, enter "day" and press SET key.
9	Using the numeric key on the screen, enter "time" and press SET key.
10	Press PREVIOUS SCREEN key to end setting.

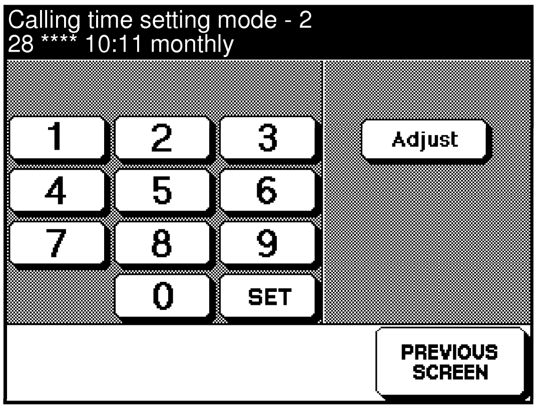
(2) Setting regular time call

Set the host call with the regular time specified.

a. Screen selection

Select ⑩ KRDS setting in the 25 Mode Menu Screen to display KRDS Setting Screen as an initial screen.
Then select ② Set regular time call to display Call Setting Screen.

[Regular Time Call Setting Screen]



Calling time setting mode - 2
28 **** 10:11 monthly

b. Mode setting method

(a) Press Adjust key to enable the numeric key on the screen.

- The numeric keys and SET key are not available unless Adjust key is pressed.

(b) Select the mode according to the following definitions:
1: Monthly 2: Weekly 3: Daily

(c) Enter the desired mode and press SET key to display the selected setting screen.

c. Date, day of the week and time setting method

Perform the operation in each mode as follows:

(a) Monthly mode
(1) Using the numeric key, enter the day, hour and minute.
(2) Press SET key every time data for one item is entered and check the entered data.

(b) Weekly mode
(1) Using the numeric key, enter the day of the week, hour and minute.
(2) The day of the week is entered using the numeric key according to the following definitions.

1: Monday	2: Tuesday	3: Wednesday	
4: Thursday	5: Friday	6: Saturday	7: Sunday

(c) Daily mode
(1) Using the numeric key, enter the hour and minute.
(2) Press SET key every time data for one item is entered and check the entered data.

(d) Common operation
(1) The screen will return to Call Setting Screen if PREVIOUS SCREEN key is pressed without pressing SET key. In this case, no entered data will be changed.
(2) Press SET key then PREVIOUS SCREEN key to end setting. The screen will return to Call Setting Screen.
(3) Enter the number with the numeric key as follows:

- The year is entered by inputting the last 2 digits of the year. (Example: 2001 is entered as 01.)
- The time is entered using 24 hour clock. (Example: 1:00p.m. is entered as 13.)
- △ Example:
  Monthly mode: 28-**-10:11 (monthly)
  Weekly mode: **-FRI-10:11 (weekly)
  Daily mode: **-***-10:11 (daily)

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu Screen] Press ⑩KRDS setting.
3	[KRDS Setting Screen] Press ① Calling time setting.
4	[Call Setting Screen] Press ② Regular transmission interval according time.
5	[Regular Time Call Setting Screen] Press Adjust key.
6	Press PREVIOUS SCREEN key to end setting.

MC-Service

(1) When the monthly mode is selected:

Step	Operation
6	Using the numeric key on the screen, enter "day" and press SET key.
7	Using the numeric key on the screen, enter "hour" and press SET key.
8	Using the numeric key on the screen, enter "minute" and press SET key.
9	Press PREVIOUS SCREEN key to end setting.

(2) When the weekly mode is selected:

Step	Operation
6	Using the numeric key on the screen, enter "day of the week" and press SET key.
7	Using the numeric key on the screen, enter "hour" and press SET key.
8	Using the numeric key on the screen, enter "minute" and press SET key.
9	Press PREVIOUS SCREEN key to end setting.

(3) When the daily mode is selected:

Step	Operation
6	Using the numeric key on the screen, enter "hour" and press SET key.
7	Using the numeric key on the screen, enter "minute" and press SET key.
8	Press PREVIOUS SCREEN key to end setting.

(3) Setting regular count call

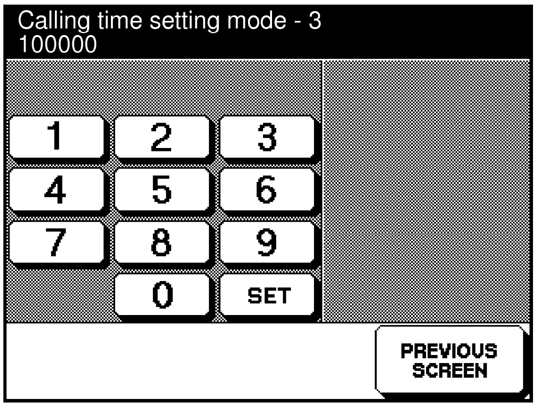
Set the host call with the regular count specified.

a. Screen selection

Select 10 KRDS setting in the 25 Mode Menu Screen to display KRDS Setting Screen as an initial screen.

Select 1 Host call setting to display Call Setting Screen. Then select 3 Regular transmisson interval according to copy count.

[Regular Count Call Setting Screen]



Calling time setting mode - 3
100000

b. Setting method

(a) Using the numeric key on the screen, enter 6-digit number, regular count value, then press SET key.

(b) The last three digits must be 0. If any number except 0 is entered for the last three digits, they will be changed to 0.
(Example: If 555500 is entered, it will be indicated as 555000.)

(c) The first number will be entered at the bottom and shifted to the left end.

(d) The screen will return to Call Setting Screen if PREVIOUS SCREEN key is pressed without pressing SET key. In this case, no number will be changed.

(e) Press SET key then PREVIOUS SCREEN key to end setting. The screen will return to Call Setting Screen.

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu Screen] Press 10 KRDS setting.
3	[KRDS Setting Screen] Press 1 Host call setting.
4	[Call Setting Screen] Press 3 Regular transmission interval according to copy count.
5	[Regular Count Call Setting Screen] Using the numeric key on the screen, enter 6-digit regular count value and press SET key.
6	Press PREVIOUS SCREEN key to end setting.

[17] Saving KRDS Data onto Memory Card

This function saves KRDS data (except EKC) onto the memory card.

To save KRDS data, use the memory card saved in a MS-DOS format. (No data can be saved in the EKC memory card formatted in the 47 mode P91.)

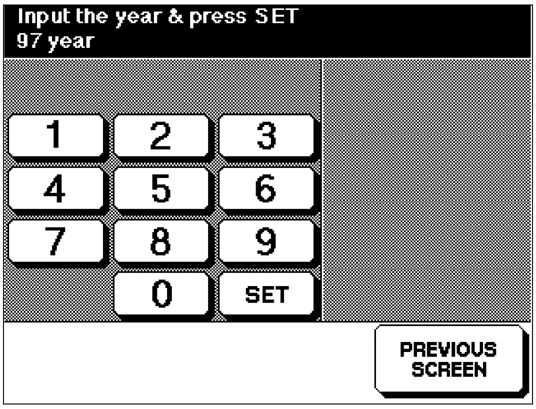
1. Screen selection

Select 10 KRDS setting in the 25 Mode Menu Screen. Then select 5 Memory card data save to display Date and Time Screen as an initial screen.

After entering the date and time, KRDS Memory Card Saving Screen will appear. Select the desired data to be saved from 1 to 3.

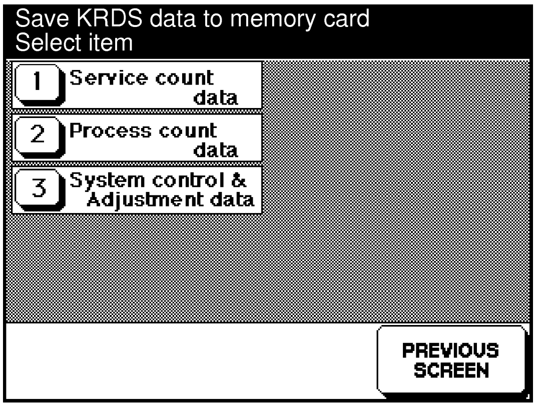
(1) Using the numeric key, enter the date and time before moving to KRDS Memory Card Saving Screen.

[Date and Time Entry Screen]


Input the year & press SET
97 year

(2) Enter year, month, day, hour, then minute.
(3) The hour is entered using 24 hour clock.
(4) Press SET key every time data for one item is entered and check the entered data.
(5) The screen will move to KRDS Memory Card Saving Screen when the minute is entered.

[KRDS Memory Card Saving Screen]


Save KRDS data to memory card
Select item

(6) Select an item from 1, 2 or 3.
(7) Select whether to save the selected data in the memory card.
YES key: Save the data indicated on the screen in the memory card
NO key: Return to KRDS Memory Card Saving Screen without saving any data
(8) The screen will return to KRDS Setting Screen if PREVIOUS SCREEN key is pressed without pressing SET key. In this case, no data will be saved.

Step	Operation
1	Enter the 25 mode.
2	[25 Mode Menu Screen] Press 10 KRDS setting.
3	[KRDS Setting Screen] Press 5 Memory card data save.
4	[Date And Time Screen] Enter the date and time using the numeric key. Press SET key every time data for one item is entered.
5	[KRDS Memory Card Saving Screen] Press 1 , 2 or 3 to select the screen.
6	Press YES or NO to determine whether to save the data in the memory card.
7	Press PREVIOUS SCREEN key to end setting.

Reference:

- The current date is used as a file name of the data saved in the memory card. The date and time are also saved as one of the data in order for easy alignment.
- SC count data can be saved in the memory card using the Software DIP switch of the main machine.

[18] Reference

ASCII is 1 byte code specified by ANSI.
It enables to indicate control code, alphabet and number.

character	binary	hexadecimal	character	binary	hexadecimal	character	binary	hexadecimal	character	binary	hexadecimal
	0000 0000	0		0010 0000	20	@	0100 0000	40	‘	0110 0000	60
SH	0000 0001	1	!	0010 0001	21	A	0100 0001	41	a	0110 0001	61
SX	0000 0010	2	"	0010 0010	22	B	0100 0010	42	b	0110 0010	62
EX	0000 0011	3	#	0010 0011	23	C	0100 0011	43	c	0110 0011	63
ET	0000 0100	4	$	0010 0100	24	D	0100 0100	44	d	0110 0100	64
EQ	0000 0101	5	%	0010 0101	25	E	0100 0101	45	e	0110 0101	65
AK	0000 0110	6	&	0010 0110	26	F	0100 0110	46	f	0110 0110	66
BL	0000 0111	7	’	0010 0111	27	G	0100 0111	47	g	0110 0111	67
BS	0000 1000	8	(	0010 1000	28	H	0100 1000	48	h	0110 1000	68
HT	0000 1001	9	)	0010 1001	29	I	0100 1001	49	i	0110 1001	69
LF	0000 1010	A	*	0010 1010	2A	J	0100 1010	4A	j	0110 1010	6A
HM	0000 1011	B	+	0010 1011	2B	K	0100 1011	4B	k	0110 1011	6B
CL	0000 1100	C	,	0010 1100	2C	L	0100 1100	4C	l	0110 1100	6C
CR	0000 1101	D	Å|	0010 1101	2D	M	0100 1101	4D	m	0110 1101	6D
S0	0000 1110	E	.	0010 1110	2E	N	0100 1110	4E	n	0110 1110	6E
S1	0000 1111	F	/	0010 1111	2F	O	0100 1111	4F	o	0110 1111	6F
DE	0001 0000	10	0	0011 0000	30	P	0101 0000	50	p	0111 0000	70
D1	0001 0001	11	1	0011 0001	31	Q	0101 0001	51	q	0111 0001	71
D2	0001 0010	12	2	0011 0010	32	R	0101 0010	52	r	0111 0010	72
D3	0001 0011	13	3	0011 0011	33	S	0101 0011	53	s	0111 0011	73
D4	0001 0100	14	4	0011 0100	34	T	0101 0100	54	t	0111 0100	74
NK	0001 0101	15	5	0011 0101	35	U	0101 0101	55	u	0111 0101	75
SN	0001 0110	16	6	0011 0110	36	V	0101 0110	56	v	0111 0110	76
EB	0001 0111	17	7	0011 0111	37	W	0101 0111	57	w	0111 0111	77
CN	0001 1000	18	8	0011 1000	38	X	0101 1000	58	x	0111 1000	78
EM	0001 1001	19	9	0011 1001	39	Y	0101 1001	59	y	0111 1001	79
SB	0001 1010	1A	:	0011 1010	3A	Z	0101 1010	5A	z	0111 1010	7A
EC	0001 1011	1B	;	0011 1011	3B	[	0101 1011	5B	{	0111 1011	7B
←	0001 1100	1C	<	0011 1100	3C	\	0101 1100	5C	|	0111 1100	7C
→	0001 1101	1D	=	0011 1101	3D	]	0101 1101	5D	}	0111 1101	7D
↑	0001 1110	1E	>	0011 1110	3E	^	0101 1110	5E	~	0111 1110	7E
↓	0001 1111	1F	?	0011 1111	3F	_	0101 1111	5F		0111 1111	7F

[19] KRDS Data List

The following tables show the data available for KRDS.

1. Common data

No.	Data	Data Change (on the copier side)	
		Enable/disable to write	Method
1.1	Serial No.	Disable	25 mode / 8 (disable to change)
1.2	Date and time (local time)	Enable	Key operator mode / 8 / 3
1.3	Regular call - time specified	Enable	25 mode / 10 / 1 / 2
1.4	Regular call - count specified	Enable	25 mode / 10 / 1 / 3
1.5	Specified datga & time to transmit.	Enable	25 mode / 10 / 1 / 1

2. Data for sale

a. Count data for sale -1 Block

No.	Data	Data Change (on the copier side)	
		Enable/disable to reset	Method
2.1	Total copy count	X	—
2.2	Copy count by copy paper size	Enable	47 mode / 15
2.3	EKC copy count	Enable	Key operator mode

b. Limit and adjust data Block

No.	Data	Data Change (on the copier side)	
		Enable/disable to write	Method
2.4	Total copy count start date	X	—
2.5	EKC password	Enable	Key operator mode
2.6	EKC copy limit	Enable	Key operator mode
2.7	EKC copy limit control (lock/unlock)	Enable	Key operator mode

c. Count data for sale -2 Block

No.	Data	Data Change (on the copier side)	
		Enable/disable	Method
3.1	Copy count 1 by EKC copy paper size (A2)	X	—
3.2	Copy count 2 by EKC copy paper size (A3)	X	—
3.3	Copy count 3 by EKC copy paper size (B4)	X	—
3.4	Copy count 4 by EKC copy paper size (A4)	X	—
3.5	Copy count 5 by EKC copy paper size (B5)	X	—
3.6	Copy count 6 by EKC copy paper size (A5)	X	—
3.7	Copy count 7 by EKC copy paper size (B6)	X	—
3.8	Copy count 8 by EKC copy paper size (8.5x14)	X	—
3.9	Copy count 9 by EKC copy paper size (8.5x11)	X	—
3.10	Copy count 10 by EKC copy paper size (Bypass feed)	X	—

3. Service data

a. Error count data Block

No.	Data	Data Change (on the copier side)	
		Enable/disable	Method
4.1	No. of SC occurrence by each point	×	—
4.2	No. of Jam occurrence by each point	×	—

b. Service count data Block

No.	Data	Data Change (on the copier side)	
		Enable/disable	Method
5.1	ADF (RADF) paper passage count	×	—
5.2	Copy count by each used mode	×	—

c. Process count data Block

No.	Data	Data Change (on the copier side)	
		Enable/disable	Method
6.1	Copy count by each part to be replaced	Enable	25 mode / 5 / Count Reset
6.2	Drum count	Enable	47 mode / code 91
6.3	Regular service count (PM)	Enable	25 mode / 3 / 1

d. Limit and adjust data Block

No.	Data	Data Change (on the copier side)	
		Enable/disable	Method
6.5	Copy limit by each part to be replaced (optional)	Enable	25 mode / 5 / Limit setting
6.6	Regular service cycle	Enable	25 mode / 3 / 2
6.7	Regular service count start date	Enable	25 mode / 3 / 1

e. System control data Block

No.	Data	Data Change (on the copier side)	
		Enable/disable	Method
7.1	Host password	Enable	25 mode / 10 / 2
7.2	Phone number	Enable	25 mode / 10 / 3
7.3	Optional machine report (including serial number)	×	—
7.4	ROM version report	×	—
7.5	Machine adjust data	Enable	25, 36 mode
7.6	DIP SW area of KRDS memory	Enable	25 mode / 10 / 4

[20] Error Code Table

Error Code	Contents	Countermeasure
K00_00	Connection NG.	Redial, repeat reception standby.
K00_01	No response from other party. (No detection of start text from host after establishing connection.)	Redial, repeat reception standby.
K00_02	Because copying is taking place, it is impossible to write to the non-volatile RAM and the line is cut.	Temporarily stop copying.
K00_03	Password does not match.	Check password.
K00_04	Serial number does not match.	Check serial number.
K00_05	Syntactical error.	Redial, repeat reception standby.
K00_06	Write-in indication on an item for which write-in is impossible.	Re-operation on host side.
K00_07	Unread item error.	Re-operation on host side.
K00_08	Signal reception time-out after detection other party response.	Redial, repeat reception standby.
K00_09	Serial number registration completed.	Check serial number.
K00_10	Communications error due to generation of carrier OFF.	Redial, repeat reception standby.
K00_11	Dial tone is not detected within 5 seconds after setting of X2 and X4 commands.	Check connection of telephone line.
K00_12	Busy signal detected.	Redial.
K00_13	No tone detected for 5 seconds after input of @ command.	Redial, repeat reception standby.
K01_00	DTR went to OFF or in OFF state.	Check modem power source. Check RS-232C cable connection.
K01_01	Cannot open RS-232C.	Turn power on copier OFF and ON.
K01_02	Cannot close RS-232C.	Turn power on copier OFF and ON.
K01_03	Response time-out from RS-232C task.	Check modem power source. Check RS-232C cable connection.
K02_00	AT command error.	Turn power on copier OFF and ON. Possibility of modem malfunction or software bug.
K02_01	Initializing NG (MODEM). Example: Modem initializing command no good.	Check modem power source. Check RS-232C cable connection.

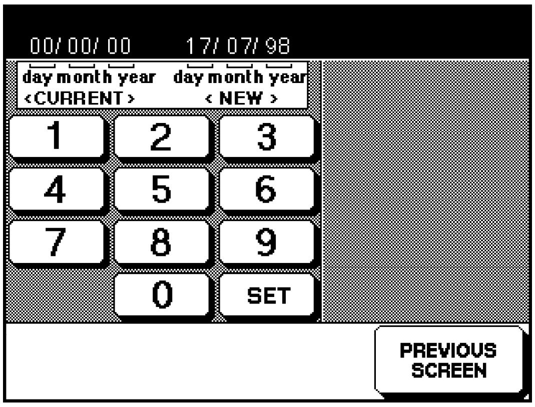
△2 [21] Set-Up Date Setting

Sets the set-up date (year, month, day) of the machine.
The set-up date which has been set here is displayed to confirm the P function (P+1).

1. Setting method of the set-up date

Select 11 Set up date setting to display Set-Up Date Setting screen in the 25 Mode Menu Screen.
The set set-up date (00/00/00 at initial state) and the present date will appear in the second row of the message display.
Press the SET key to set the date as the present date.
If the present date is incorrect, input the correct date in 6 digits using the numeric keys on the screen, then press the SET key.

[Set-Up Date Setting Screen]



00/ 00/ 00   17/ 07/ 98

Press the PREVIOUS SCREEN key to cancel set-up date setting, and return to the 25 Mode Menu screen.

△2 [22] 25 Mode Adjust Item List

Adjust Item				(Remarks)
①	Software DIP SW Setting			Refer to "List of Software DIP SW".
②	Paper Size Setting			
③	PM count/cycle	①	PM count reset	
		②	PM cycle reset	
④	Data collection		Data collection -1 (by each size: Printer mode and Copy mode) (ADF original feed count)	1~12 items
			Data collection -2 (by each size: Printer mode)	1~10 items
			Data collection -3 (by each size: Copy mode)	1~10 items
			Data collection -4 (JAM occurrence count by each Jam code)	1~63 items
			Data collection -5 (Copy count by each mode)	1~68 items
			Data collection -6 (SC occurrence count: F code)	1~92 items
			Data collection -7 (SC occurrence count: E code)	1~61 items
⑤	Parts counter			Optional count for 1 to 30 items
⑥	Password Setting	①	Key operator password setting	4 digit
		②	Key EKC master key code setting	8 digit
		③	Key weekly timer master key code setting	4 digit
⑦	Telephone number setting			Telephone & Fax. No of Service center setting.
⑧	Indication of m/c serial number			Indicate serial No. of main and each optional machine
⑨	Indication of ROM version			Indicate each ROM version
⑩	KRDS Setting	①	Calling time setting	This function is not available unless the machine is equipped with KRDS or Memory Card.
		②	Host password setting	
		③	KRDS telephone number setting	
		④	KRDS software Switch setting	Refer to "List of KRDS Software DIP Switch".
		⑤	Save KRDS data to memory card.	Selectable only if equipped with memory card.
		⑥	Calling the host for setup	This function is not available unless the machine is equipped with KRDS.
⑪	Set up date setting			Set set up date.

36 MODE

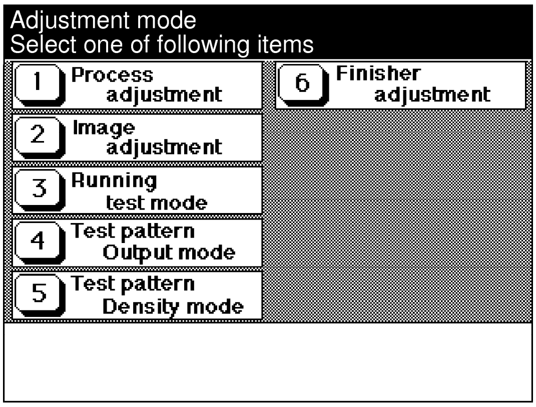
A special operating mode called "36 Mode" has been provided with this machine. This mode enables adjustment of various items.

Note: During warm-up, the screen will not return to the previous screen even by pressing the P and C buttons simultaneously. To return to the adjustment screen, turn OFF the main switch temporarily and go back to the 36 mode, or press the P button and the C button simultaneously after warm-up has finished.

[1] Setting Method

1. Turn off the main switch.
2. Turn the main switch back on while holding down 3 and 5 of the copy quantity setting buttons.
   36 Mode Menu Screen will appear.
   At this time, the normal copy operation is not available.

[36 Mode Menu Screen]



Adjustment mode
Select one of following items

1 Process adjustment
2 Image adjustment
3 Running test mode
4 Test pattern Output mode
5 Test pattern Density mode
6 Finisher adjustment

3. Press the desired number key of the item to adjust.
   The selected adjustment screen will appear.
4. Enter data in each adjustment screen.
5. Press ⬇ ⬆ keys to select an item if more than one screen exists. Press the appropriate key to display any subordinate screen.
6. Enter data and press SET key (if it exists) to check the data.
7. Press PREVIOUS SCREEN key to end adjustment.
8. Turn off the main switch to cancel the 36 mode.
9. New data can be adjusted after restarting the machine.

[2] High Voltage Adjustment

1. Charging Corona Current Adjustment

Charging Corona Current Adjustment is inhibited in the field.

2. Transfer Current Adjustment

Transfer Current Adjustment is inhibited in the field.

3. Separation (AC) Current Adjustment

Separation (AC) Current Adjustment is inhibited in the field.

4. Separation (DC) Current Adjustment

Separation (DC) Current Adjustment is inhibited in the field.

5. Developing Bias Adjustment

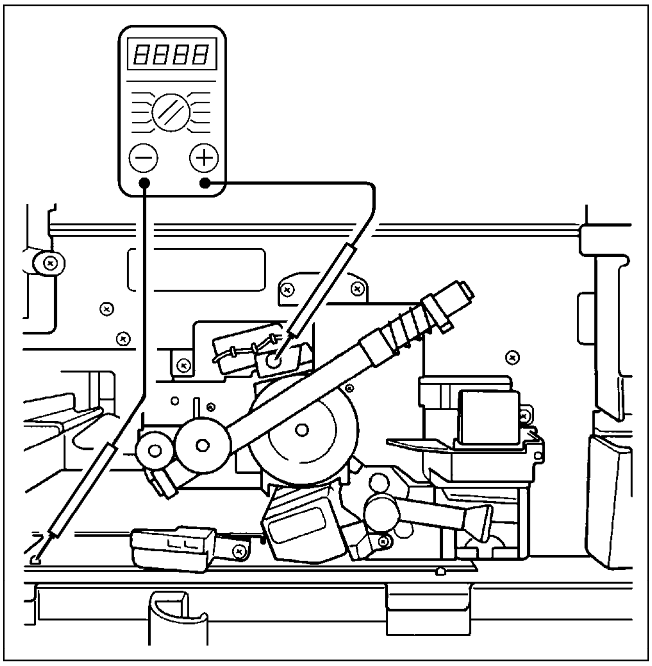
Developing Bias Adjustment is inhibited in the field.

6. Charging Grid Voltage Adjustment

Adjust the charging grid voltage.
Confirm that the drum counter is reset (clear).

Step	Operation (display)
1	Check the standard value of the grid voltage (Drum designate value) written at the drum flange.
2	Connect the tester as shown in the figure. + →Grid pin - →GND(Earth) Range →DC1000V
3	Enter the 36 mode.
4	[36 Mode Menu Screen] Press 1 Process adjustment.
5	[Process Adjustment Menu Screen] Press 1 HV adjustment.
6	[High Voltage Adjustment (charging) Screen] Press the ⬇ ⬆ key until " Grid voltage" appears in the message display area.
7	[High Voltage Adjustment (GRID) Screen] Press the Start Print button and check the tester value. After checking, press Stop/Clear button.
8	If the measurement value is different to the standard value, enter a value using the numeric keys on the screen, then press the SET key. *1
9	To end adjustment, turn off the main switch.

*1: Standard value = Drum designate value ± 5V
Input range = 0 to 255
1 step = 1.6V

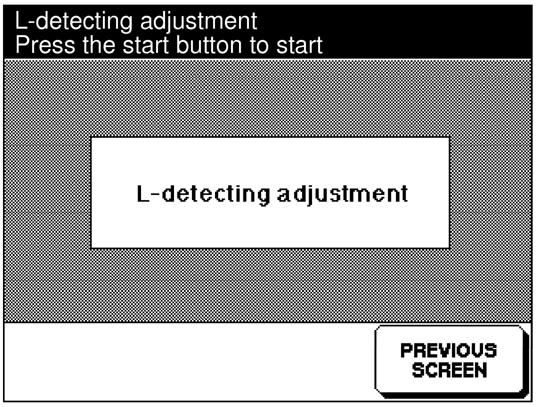


[3] L-Detecting Adjustment

Automatic adjustment by sensing toner density.
Perform this adjustment at initial machine installation (installing developer) or after replacing the developer.
The developing counter resets automatically after adjustment.

Caution: When starting the adjustment, check that the developer is replaced with a new developer. If the adjustment is performed with a used developer, the adjustment value will become incorrect since the used developer toner density becomes the reference value.

[L-Detecting Adjustment Screen]



L-detecting adjustment
Press the start button to start

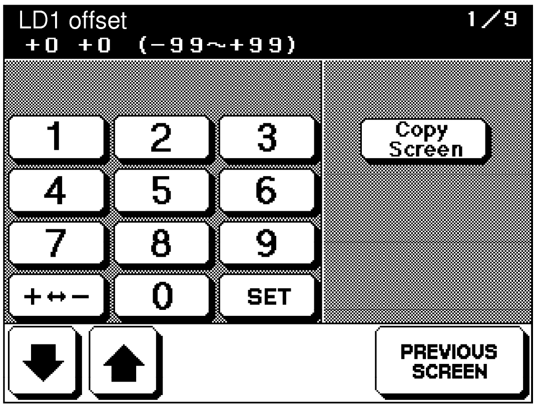
L-detecting adjustment

Step	Operation
1	Enter the 36 mode.
2	[36 Mode Menu Screen] Press ① Process adjustment.
3	[Process Adjustment Menu Screen] Press ② L-detecting adjustment.
4	[L-Detecting Adjustment Screen] Press the Start Print button. • The agitator screws in the developing unit rotate, and L sensing sensor is automatically read. • After about 5 minutes, this adjustment automatically stops, and the OUT item displays in the message display area changes from [NOW] to [FIN].
5	Press the [PREVIOUS SCREEN] key to return to the Process Adjustment Menu Screen.

[4] Laser Adjustment

Perform adjustment of the two laser outputs.
Select ① Process adjustment in the 36 Mode Menu Screen.
Select ③ Laser adjustment in the Process Adjustment Menu Screen.
Laser Adjustment Screen will appear.

[Laser Adjustment Screen]



LD1 offset 1/9
+0 +0 (−99~+99)

The Laser Adjustment Screen has the following 9 adjustment items. Select an item by pressing the ⬇ ⬆ key.

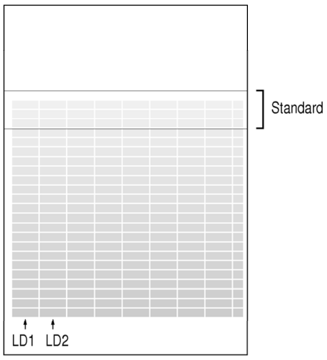
- LD1 offset
- LD2 offset
- LD1 offset thick paper
- LD2 offset thick paper
- Sub pitch offset
- LD1 offset 600dpi
- LD2 offset 600dpi
- LD1 offset thick paper 600dpi
- LD2 offset thick paper 600dpi

Note: 400dpi and 600dpi adjustments are in LD1, LD2 offset adjustment. 600dpi adjustment is done in the same method as 400dpi adjustment.

1. Gradation Adjustment (LD1, LD2 offset/400dpi)

Adjust the laser gradation.

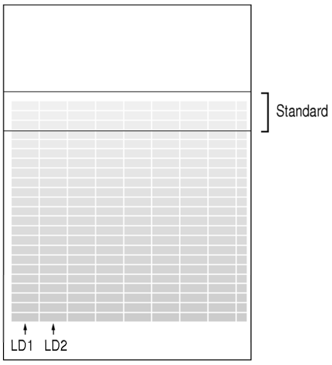
Note: Always perform this adjustment after completing the following adjustments.
- Charging grid voltage adjustment.
- Maximum density adjustment (400dpi).

Step	Operation
1	Enter the 36 Mode.
2	[36 Mode Menu Screen] Press ① Process adjustment.
3	[Process Adjustment Menu Screen] Press ③ Laser adjustment.
4	[Laser Adjustment Screen] Select either LD1 Offset or LD2 Offset with the ⬇ ⬆ key, then press the Copy Screen key. (Adjust the LD1 offset/LD2 offset.)
5	Load A3 paper into tray 1, press the Start Print button to output the test pattern.
6	Check the test pattern. Standard: Check if the output patterns of the two lasers are uniform and that the low-density section starts anywhere between the two standard lines, as shown in the figure below. 
7	If the test pattern does not conform to the standard, press the C button while pressing the P button to return to the Laser Adjustment Screen.
8	Select the adjustment item (LD1 offset or LD2 offset) with the ⬇ ⬆ key, and enter a value from the numeric keys, then press the SET key. Setting range: -99 to +99.
9	Repeat steps 4 to 8 until the offset is within the standard value.
10	Perform the same adjustment for LD1 thick paper offset/LD2 thick paper offset.
11	When adjustment is completed, press the PREVIOUS SCREEN key.
12	After this adjustment has been completed, perform the gamma adjustment (400 dpi).

2. Gradation Adjustment (LD1, LD2 offset/600dpi)

This adjustment is performed when the main unit is equipped with IP and is also used as a printer.

Note: Always perform this adjustment after completing the following adjustments.
- LD1, LD2 offset adjustment (400dpi).
- Maximum density adjustment (600dpi).

Step	Operation
1	Enter the 36 Mode.
2	[36 Mode Menu Screen] Press ① Process adjustment.
3	[Process Adjustment Menu Screen] Press ③ Laser adjustment
4	[Laser Adjustment Screen] Select either LD1 Offset 600dpi or LD2 Offset 600dpi with the ⬇ ⬆ key, then press the Copy Screen key. (Adjust the LD1 offset 600dpi/ LD2 offset 600dpi.)
5	Load A3 paper into tray 1, press the Start Print button to output the test pattern.
6	Check the test pattern. Standard: Check if the output patterns of the two lasers are uniform and that the low-density section starts anywhere between the two standard lines, as shown in the figure below. 

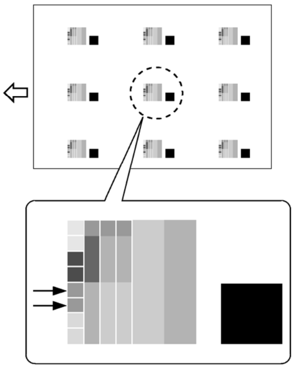
Step	Operation
7	Press the C button while pressing the P button to return to the Laser Adjustment Screen.
8	If the test pattern does not conform to the standard, enter a value from the numeric keys, then press the SET key. Setting range: -99 to +127.
9	Repeat steps 4 to 8 until the offset is within the standard value.
10	Perform the same adjustment for LD1 thick paper offset 600dpi/LD2 thick paper offset 600dpi.
11	When adjustment is completed, press the PREVIOUS SCREEN key.
12	After this adjustment has been completed, perform the gamma adjustment (600dpi).

3. Sub Pitch Offset Adjustment

Adjust the interval in the sub scanning direction of the laser.

Note: Always perform this adjustment after completing the following adjustment.

- Gradation adjustment (LD1, LD2 offset)

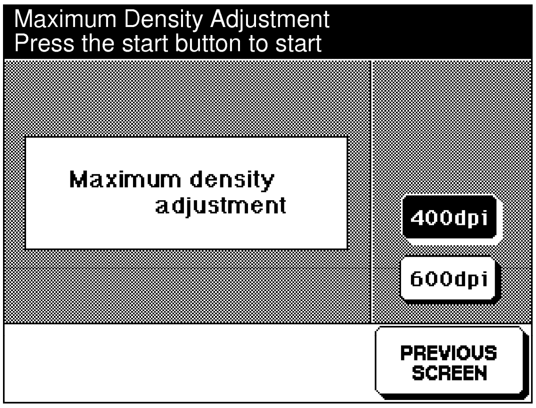
Step	Operation
1	Enter the 36 mode.
2	[36 Mode Menu Screen] Press 1 Process adjustment.
3	[Process Adjustment Screen] Press 3 Laser adjustment
4	[Laser Adjustment Screen] Using the ⬇ ⬆ key, select the sub pitch offset.
5	Press the Copy Screen key.
6	Load A3 paper into tray 1, then press the Start Print button to output a test pattern.
7	Check the test pattern. Standard: The density of the two parts indicated by the arrows must be uniform. 
8	If the test pattern does not conform to the standard, press the C button while pressing the P button.
9	Enter a value from the numeric keys, then press the SET key. Setting range: -99 to +99
10	Repeat steps 5 to 9 until the offset is within the standard value.
11	When adjustment is completed, press the PREVIOUS SCREEN key.

[5] Maximum Density Adjustment (Dmax adjustment)

Maximum density adjustment is available for both 400dpi and 600dpi. Both adjustments are performed in the same method.

Note: Always perform this adjustment after completing the charging grid voltage adjustment.

[Maximum Density Adjustment Screen]



Maximum Density Adjustment
Press the start button to start

Step	Operation
1	Enter the 36 Mode.
2	[36 Mode Menu Screen] Press 1 Process adjustment.
3	[Process Adjustment Menu Screen] Press 4 Maximum density adjustment.
4	[Maximum Density Adjustment Screen] Press the 600dpi key to select when adjusting 600dpi or the 400dpi key when adjusting 400dpi. Press the Start Print button. The maximum density (Dmax) will be adjusted automatically. When adjustment is finished, [FIN] appears on the screen.
5	Press the PREVIOUS SCREEN key to return to the Process Adjustment Menu Screen.

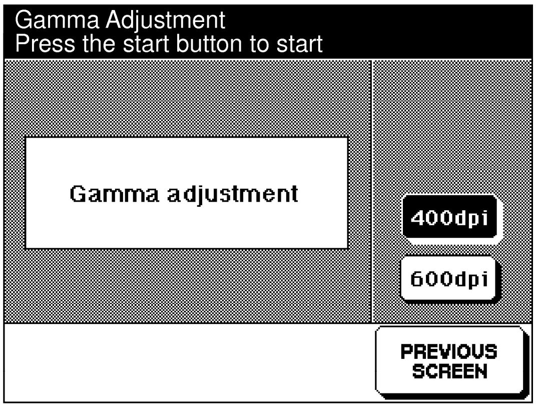
Reference: It is possible to perform maximum density adjustment and gamma adjustment at the same time by selecting "6 Max. density adj. + Gamma adj." on the Process Adjustment Menu Screen.

[6] Gamma Adjustment

Gamma adjustment is available for both 400dpi and 600dpi. Both adjustments are performed in the same method.

Note: Always perform this adjustment after completing the gradation adjustment.

[Gamma Adjustment Screen]



Gamma Adjustment
Press the start button to start

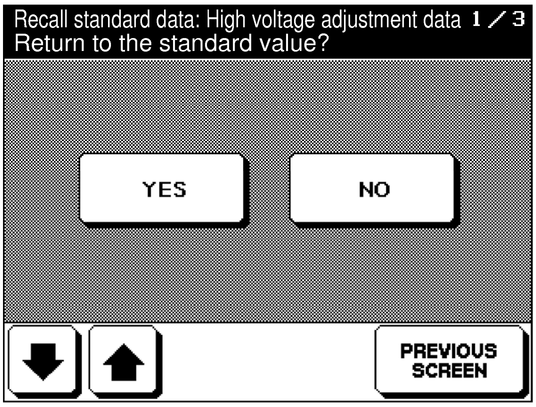
Step	Operation
1	Enter the 36 Mode.
2	[36 Mode Menu Screen] Press 1 Process adjustment.
3	[Process Adjustment Menu Screen] Press 5 Gamma adjustment
4	[Gamma Adjustment Screen] Press the 600dpi key to select when adjusting 600dpi. Press the Start Print button. The gamma adjustment will be adjusted automatically. When adjustment is finished, [FIN] appears on the screen.
5	Press the PREVIOUS SCREEN key to return to the Process Adjustment Menu Screen.

Reference: It is possible to perform maximum density adjustment and gamma adjustment at the same time by selecting "6 Max. density adj. + Gamma adj." on the Process Adjustment Menu Screen.

[7] Recall Standard Data (Process adjustment)

This returns each set value of the process adjustments to the standard value (data after production adjustment).

[Recall Standard Data Screen]



Recall standard data: High voltage adjustment data 1 / 3
Return to the standard value?

Step	Operation
1	Enter the 36 Mode.
2	[36 Mode Menu Screen] Press 1 Process adjustment.
3	[Process Adjustment Menu Screen] Press 7 Recall standard data
4	[Recall Standard Data Screen] Use the ⬇ ⬆ keys to select the item to recall in the standard data. *1: Item to select
5	Check the selected item in the message display area.
6	Press the YES key to recall the data of the selected item.
7	Press the NO key or the PREVIOUS SCREEN key to cancel or end standard data recall, and to return to the Process Adjustment Menu Screen.

*1: Selectable items

- High voltage adjustment data
- L-detecting adjustment data
- Laser adjustment data

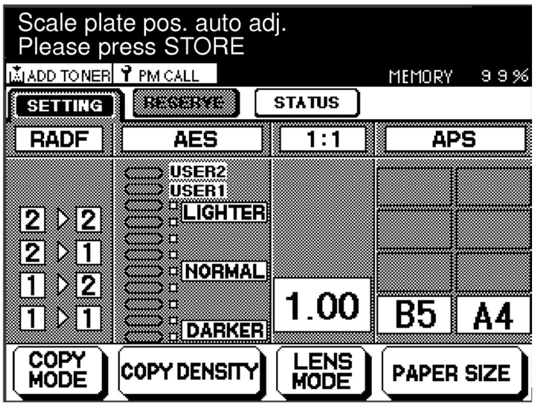
Note: The "L-detection adjustment data" should not be reset as the adjustment value will become that of the developer used during the factory process adjustment.

[8] Scale Plate Position Auto Adjustment

This detects the installed position of the original stopper plate (rear) automatically. This is to be performed only when the read positioning plate was removed by mistake.

Note:
1. Be sure not to do adjustment under direct sunlight or electric light as scan will be done by the skyshot.
2. Be sure not to put such items as paper on the platen glass. This will lead to misjudgment.

[Scale Plate Position Auto Adjustment Screen]



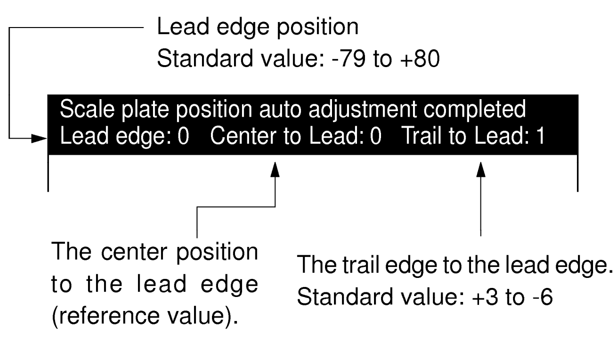
Scale plate pos. auto adj.
Please press STORE

Step	Operation
1	Open RADF.
2	Enter the 36 mode.
3	[36 Mode Menu Screen] Press 2 Image adjustment.
4	[Image Adjustment Screen] Press 1 Scale plate pos. auto adj.
5	[Scale Plate Position Auto Adjustment Screen] Check to see that no items is on the platen glass, load A3 paper into the tray 1, and set the magnification to 100%, then press the Store button. Auto adjustment is performed by the exposure unit scan.

Step	Operation
6	Check the adjustment value indicated in the message display area. *1: Standard value, *3: Error indications
7	Adjust the installed position of the original stopper plate (rear) if the value is beyond standard value. *2: Adjustment method
8	Press the C button while pressing the P button to end setting and return to the image adjustment screen.

*1: Standard value

The lead edge must be in the range of -79 to +80, and the trail edge must be in the range of +3 to -6. (The center value is a reference value.)



```
Scale plate position auto adjustment completed
Lead edge: 0   Center to Lead: 0   Trail to Lead: 1
```

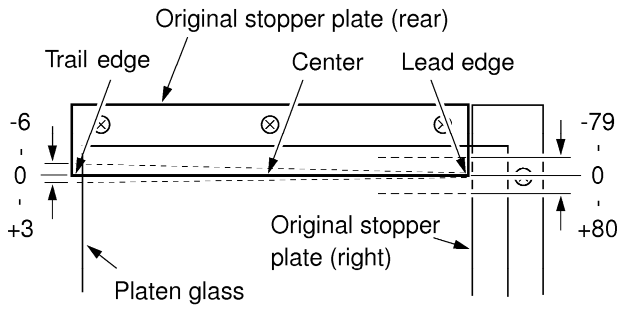
Lead edge position
Standard value: -79 to +80
The center position to the lead edge (reference value).
The trail edge to the lead edge.
Standard value: +3 to -6

*2: Adjusting method

(1) Loosen the three set screws on the original stopper plate (rear).
Move the original stopper plate (rear) to the back side when the adjustment value is minus (-). When the value is plus (+), move the original stopper plate (rear) to the front side.
The adjustment value of 1 is equivalent to 0.0635mm.

(2) Tighten the three set screws on the original stopper plate (rear).

(3) Press the Start Print button and perform the scale plate position auto adjustment one more time.


Original stopper plate (rear)
Trail edge
Center
Lead edge
-6
0
+3
-79
0
+80
Original stopper plate (right)
Platen glass

*3: Error indications

An error will be indicated if the adjustment was not finished properly.

The followings are the errors indicated:

(a) Error : 01
At least 1 of the 3 detection points (Lead edge, Center, Trail edge) was not detected due to some kind of a problem with the software.

(b) Error: 02
The scale plate position was not detected due to such environments as the lighting, or the adjustment made by closing the RADF.

(c) Error: 04
The density in the skyshot section or the original stopper plate (rear) section is not stable.

(d) Error: 08
The edge of the original stopper plate (rear) cannot be detected.

<Measures>

When Error:01 is indicated

- Perform the adjustment one more time after turning OFF the main switch.

When Errors: 02, 04, and 08 are indicated

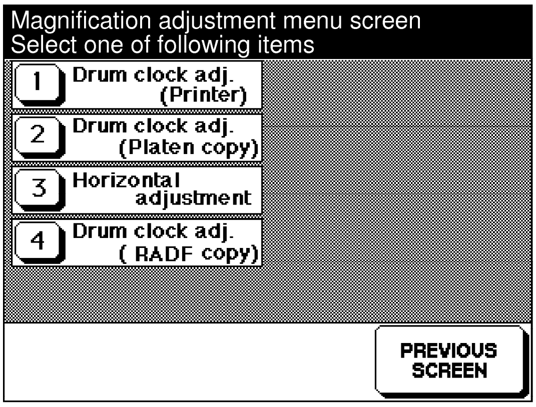
- Perform the adjustment one more time making sure that the platen glass is not exposed to direct lights.
  Also, check if the platen glass is dirty, or for smudges and contortions in the backside of the original stopper plate (rear).

[9] Magnification Adjustment

This is to adjust the vertical and horizontal magnifications in the printer system and the copy system.

1. Select 2 Image adjustment in the 36 Mode Menu Screen to display the Image Adjustment Menu Screen.
2. Select 2 Magnification adjustment to display the Magnification Adjustment Menu Screen.

[Magnification Adjustment Menu Screen]



Magnification adjustment menu screen
Select one of following items

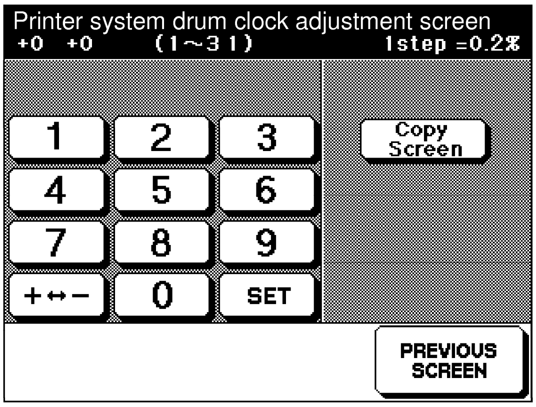
1 Drum clock adj. (Printer)
2 Drum clock adj. (Platen copy)
3 Horizontal adjustment
4 Drum clock adj. (RADF copy)
PREVIOUS SCREEN

3. The magnification adjustment items are listed below.
   [1] Drum clock adj. (printer)
   [2] Drum clock adj. (platen copy)
   [3] Horizontal adjustment
   [4] Drum clock adj. (RADF copy)
4. Press the number key of the item to adjust.
   The adjustment screen of the selected item will appear.
5. The Magnification Adjustment Menu Screen will be redisplayed when each adjustment is completed.
6. Press the PREVIOUS SCREEN key in the Magnification Adjustment Menu Screen to return to the Image Adjustment Menu Screen.

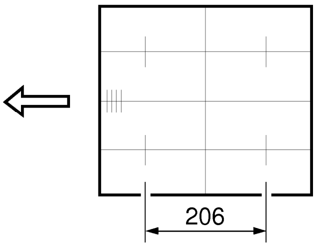
1. Drum Clock Adjustment (printer)

This is to adjust the vertical magnification in the printer system. (Drum rotation speed is changed.)

[Printer System Drum Clock Adjustment Screen]



Printer system drum clock adjustment screen
+0 +0 (1~31) 1step =0.2%

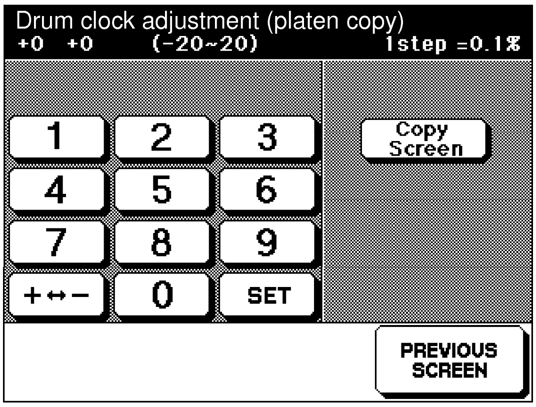
Step	Operation
1	Enter the 36 mode.
2	[36 Mode Menu Screen] Press 2 Image adjustment.
3	[Image Adjustment Menu Screen] Press 2 Magnification adjustment.
4	[Magnification Adjustment Menu Screen] Press 1 Drum clock adj. (printer)
5	[Printer System Drum Clock Adjustment Screen] Press the Copy Screen key after loading A3 size paper into Tray 1. Press the Start Print button to output the test pattern (No.16).
6	Measure the vertical magnification with a ruler. **Standard value: ±0.5% max (life size)** **Within about ±1mm with respect to 206mm**  Vertical magnification

Step	Operation
7	If the vertical magnification is different to the standard value, press the C button while pressing the P button to return to the Printer System Drum Clock Adjustment Screen.
8	Enter a value from the numeric keys on the screen, then press the SET key. Setting range: 1 to 31 1 step=0.2 %
9	Repeat steps 5 to 8 until the vertical magnification becomes the standard value.
10	Press the PREVIOUS SCREEN key to return to the Magnification Adjustment Menu Screen.

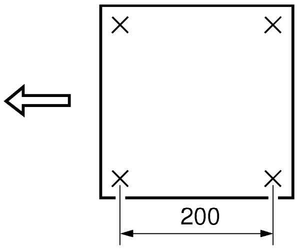
2. Drum Clock Adjustment (platen copy)

This is to adjust the vertical magnification in the copy system. (Optics scan speed is changed.)

[Platen System Drum Clock Adjustment Screen]



Drum clock adjustment (platen copy)
+0 +0 (-20~20) 1step =0.1%

Step	Operation
1	Enter the 36 mode.
2	[36 Mode Menu Screen] Press ② Image adjustment.
3	[Image Adjustment Menu Screen] Press ② Magnification adjustment.
4	[Magnification Adjustment Menu Screen] Press ② Drum clock adj. (Platen copy)
5	[Platen System Drum Clock Adjustment Screen] Press the Copy Screen key after loading A3 size paper into Tray 1. Set the pyramid chart on the platen glass. Press the Start Print button, make a copy, and measure the vertical magnification with a ruler. **Standard value: ±0.5% max (life size)** **Within about ±1mm with respect to 200mm** 

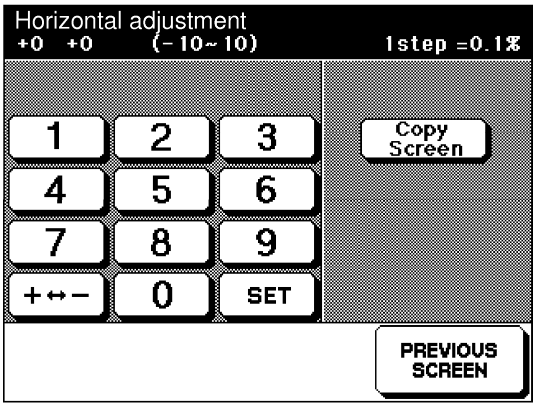
Step	Operation
6	If the vertical magnification is different to the standard value, press the C button while pressing the P button to return to the printer system drum clock adjustment screen.
7	Enter a value from the numeric keys on the screen, then press the SET key. Set range: -20 to 20 1 step=0.1 %
8	Repeat steps 5 to 7 until the vertical magnification becomes the standard value.
9	Press the PREVIOUS SCREEN key to return to the Magnification Adjustment Menu Screen.

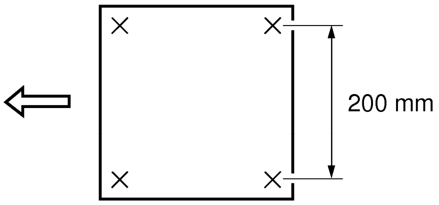
3. Horizontal Adjustment (platen copy)

This is to adjust the horizontal magnification in the copy system.

Note: A horizontal magnification adjustment does not exist in the printer system.

[Horizontal Magnification Adjustment Screen]

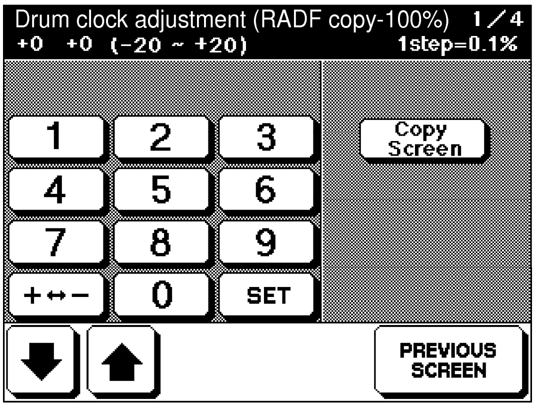


Step	Operation
1	Enter the 36 mode.
2	[36 Mode Menu Screen] Press ② Image adjustment.
3	[Image Adjustment Menu Screen] Press ② Magnification adjustment.
4	[Magnification Adjustment Menu Screen] Press ③ Horizontal adjustment.
5	[Horizontal Magnification Adjustment Screen] Press the Copy Screen key after loading A3 size paper into Tray 1. Set the pyramid chart on the platen glass. Press the Start Print button, make a copy, and measure the horizontal magnification with a ruler. **Standard value: ±0.5% max (life size)** **Within about ±1mm with respect to 200mm** 
6	If the horizontal magnification is different to the standard value, press the C button while pressing the P button to return to the Horizontal Magnification Adjustment Screen.
7	Enter a value from the numeric keys on the screen, then press the SET key. Setting range: -10 to 10 1 step=0.1 %
8	Repeat steps 5 to 7 until the horizontal magnification becomes the standard value.
9	Press the PREVIOUS SCREEN key to return to the Magnification Adjustment Menu Screen.

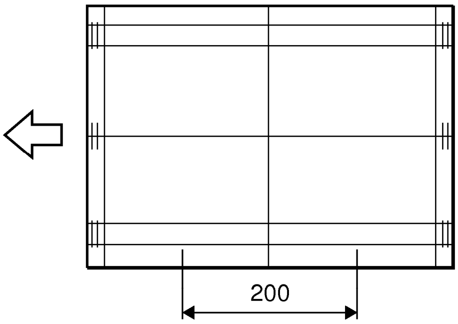
4. Drum Clock Adjustment (RADF copy)

This is to adjust the vertical magnification during RADF copy. (Speed of the RADF is adjusted.)

[Drum Clock Adjustment (RADF copy) Screen]



Drum clock adjustment (RADF copy-100%) 1/4
+0 +0 (-20 ~ +20) 1step=0.1%

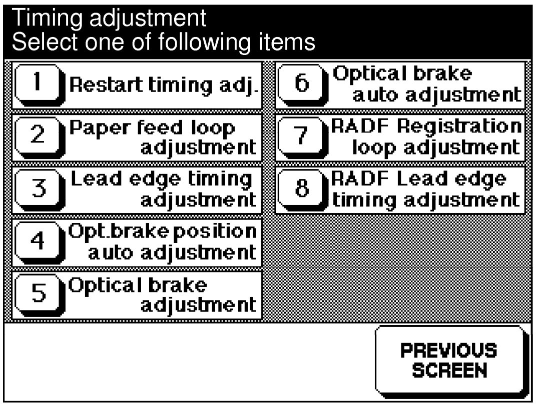
Step	Operation
1	Enter the 36 mode.
2	[36 Mode Menu Screen] Press 2 Image adjustment.
3	[Image Adjustment Menu Screen] Press 2 Magnification adjustment.
4	[Magnification Adjustment Menu Screen] Press 4 Drum clock adj. (RADF copy)
5	[Drum Clock Adjustment (RADF copy) Screen] Press the Copy Screen key.
6	Set the adjustment chart on the RADF, and load A3 size paper into Tray 1.
7	Press the Start Print button, make a copy, and measure the vertical magnification with a ruler. **Standard value: ±0.5% max (life size)** **Within about ±1mm with respect to 200mm** 
8	If the vertical magnification is different to the standard value, press the C button while pressing the P button to return to the Drum Clock Adjustment (RADF copy) Screen.
9	Enter a value from the numeric keys on the screen, then press the SET key. Set range: -20 to 20 1 step=0.1 %
10	Repeat steps 5 to 9 until the vertical magnification becomes the standard value.
11	Press the PREVIOUS SCREEN key to return to the Magnification Adjustment Menu Screen.

[10] Timing Adjustment

This is to adjust such items as the paper feed restart timing, the paper feed loop amount, and the lead edge blank cut amount.

1. Select 2 Image adjustment in the 36 Mode Menu Screen and display the Image Adjustment Menu Screen.
2. Press 3 Timing adjustment and display the Timing Adjustment Menu Screen.

[Timing Adjustment Menu Screen]



Timing adjustment
Select one of following items

1 Restart timing adj.
2 Paper feed loop adjustment
3 Lead edge timing adjustment
4 Opt.brake position auto adjustment
5 Optical brake adjustment
6 Optical brake auto adjustment
7 RADF Registration loop adjustment
8 RADF Lead edge timing adjustment
PREVIOUS SCREEN

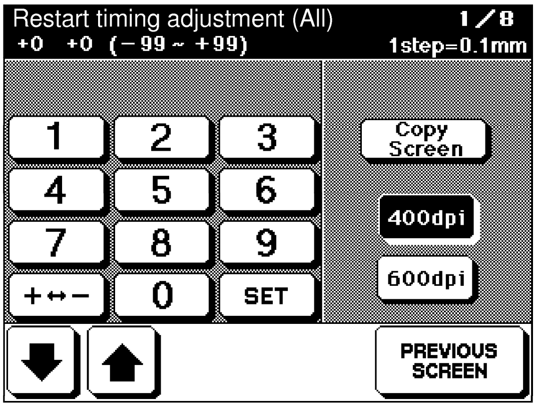
3. The timing adjustment items are listed below.
   - [1] Restart timing adjustment
   - [2] Paper feed loop adjustment
   - [3] Lead edge blank cut timing adjustment
   - [4] Optical brake position auto adjustment (*1)
   - [5] Optical brake adjustment (*1)
   - [6] Optical brake auto adjustment (*1)
   - [7] RADF registration loop adjustment
   - [8] RADF lead edge timing adjustment
4. Press the number key of the item to adjust.
   The adjustment screen of the selected item will appear.
5. This Timing Adjustment Menu Screen will be redisplayed when completing all adjustments.
6. Press the PREVIOUS SCREEN key in the Timing Adjustment Menu Screen to return to the Image Adjustment Menu Screen.

*1: These adjustments are inhibited in the field.

1. Restart Timing Adjustment

This is to adjust the restart timing (paper feed timing).

[Restart Timing Adjustment Screen]



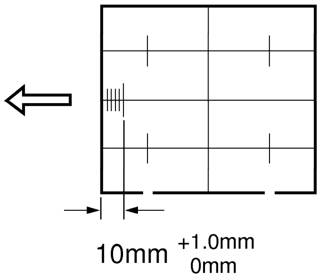
Restart timing adjustment (All) 1/8
+0 +0 (−99 ~ +99) 1step=0.1mm

1
2
3
4
5
6
7
8
9
+↔−
0
SET
Copy Screen
400dpi
600dpi
⬇
⬆
PREVIOUS SCREEN

There are 8 adjustment items in the restart timing adjustment which are selected by using the ⬇ ⬆ keys.

- All
- Tray 1 (upper tray)
- Tray 2 (lower tray)
- Tray 3 (1000 tray)
- Tray 4 (1500 tray)
- Tray 5 (LT-352)
- By-pass
- Side 2 (ADU)

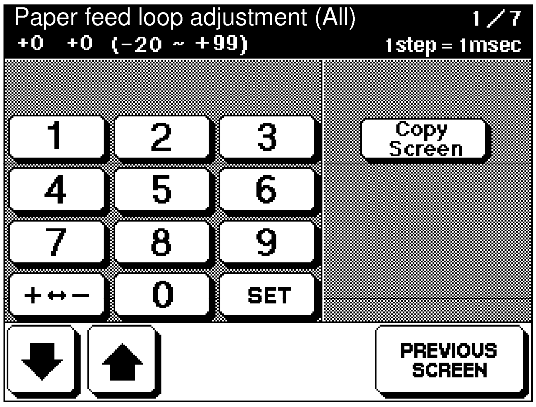
Note:
1. 400dpi and 600dpi adjustments are in restart timing adjustment. 600dpi adjustment is done in the same method as 400dpi adjustment.
2. The adjustment value when adjusting by selecting All is input in Tray 1 to 5, by-pass feed, and the back side (ADU).
   When the adjustment value input by All is a value other than 0, however, it will exit All adjustment, but when returning to the All adjustment screen again, the adjustment value will be 0. (In other words, the All adjustment value itself will reset after the value is input in each tray, etc.)

Step	Operation
1	Enter the 36 mode.
2	[36 Mode Menu Screen] Press ② Image adjustment.
3	[Image Adjustment Menu Screen] Press ③ Timing adjustment.
4	[Timing Adjustment Menu Screen] Press ① Restart timing adj.
5	[Restart Timing Adjustment Screen] Select the adjustment item by pressing the ⬇ ⬆ keys.
6	Press the Copy Screen key. (Adjustment for Tray 1) Press the Start Print button to output the test pattern (No.16) after loading A3 size paper into Tray 1.
7	Check the lead edge timing visually. Standard value: $10\text{mm}^{+1.0\text{mm}}_{0\text{mm}}$ 
8	Press the C button while pressing the P button if the lead edge timing is beyond standard, and return to the Restart Timing Adjustment Screen.
9	Enter a value from the numeric keys on the screen, and press the SET key. Setting range: -99 (slow) to 99 (fast) 1 step=0.1mm
10	Repeat Steps 6 to 9 until the lead edge timing becomes the standard value.
11	Then, for the same adjustments for Trays 2 to 5, by-pass feed, and ADU, repeat steps 5 to 9. However, for Trays 1 to 5 and by-pass feed, adjustment is made with paper actually used in the tray, and for ADU, A3 size paper is used in Tray 1 for the adjustment.
12	Press the PREVIOUS SCREEN key to return to the Timing Adjustment Menu Screen.

2. Paper Feed Loop Adjustment

This is to adjust the paper feed loop amount in each tray.

[Paper Feed Loop Adjustment Screen]



Paper feed loop adjustment (All) 1/7
+0 +0 (-20 ~ +99) 1step = 1msec

There are 7 adjustment items in the paper feed loop adjustment which are selected by using the ⬇ ⬆ keys.

- All
- Tray 1 (upper tray)
- Tray 2 (lower tray)
- Tray 3 (1000 tray)
- Tray 4 (1500 tray)
- Tray 5 (LT-352)
- By-pass

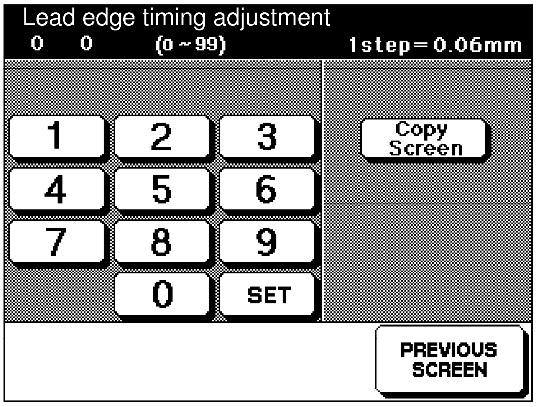
Note: The adjustment value when adjusting by selecting All is input in Tray 1 to 5 and by-pass feed.
When the adjustment value input by All is a value other than 0, however, it will exit All adjustment, but when returning to the All adjustment screen again, the adjustment value will be 0. (In other words, the All adjustment value itself will reset after the value is input in each tray, etc.)

Step	Operation
1	Enter the 36 mode.
2	[36 Mode Menu Screen] Press ② Image adjustment.
3	[Image Adjustment Menu Screen] Press ③ Timing adjustment.
4	[Timing Adjustment Menu Screen] Press ② Paper feed loop adjustment.
5	[Paper Feed Loop Adjustment Screen] Select the adjustment item by pressing the ⬇ ⬆ keys.
6	Press the [Copy Screen] key.
7	Make a copy and check the paper feed loop amount.
8	Press the C button while pressing the P button.
9	Enter a value from the numeric keys on the screen, and press the [SET] key. Setting range: -20 (small) to 00 (standard) to 99 (large) 1 step=1msec
10	Repeat steps 6 to 9 until the paper feed loop amount is appropriate.
11	Press the [PREVIOUS SCREEN] key to return to the Timing Adjustment Menu Screen.

3. Lead Edge Timing Adjustment

This is to adjust the lead edge blank cut amount (original erasure amount).

[Lead Edge Timing Adjustment Screen]



Lead edge timing adjustment
0 0 (0 ~ 99) 1step=0.06mm

Step	Operation
1	Enter the 36 mode.
2	[36 Mode Menu Screen] Press ② Image adjustment.
3	[Image Adjustment Menu Screen] Press ③ Timing adjustment.
4	[Timing Adjustment Menu Screen] Press ③ Lead edge timing adjustment.
5	[Lead Edge Timing Adjustment Screen] Press the [Copy Screen] key.
6	Load A3 size paper into Tray 1, make a copy of the pyramid chart, and check the output. **Standard value: 3mm max**
7	If the lead edge original erasure amount is different to the standard value, press the C button while pressing the P button.
8	Enter a value from the numeric keys on the screen, and press the [SET] key. Setting range: 0 (small) to 99 (large) 1 step=0.064mm
9	Repeat steps 5 to 8 until the lead edge original erasure amount becomes the standard value.
10	Press the [PREVIOUS SCREEN] key to return to the Timing Adjustment Menu Screen.

4. Optical Brake Position Auto Adjustment

Optical brake position auto adjustment is inhibited in the field.

5. Optical Brake Adjustment

Optical brake adjustment is inhibited in the field.

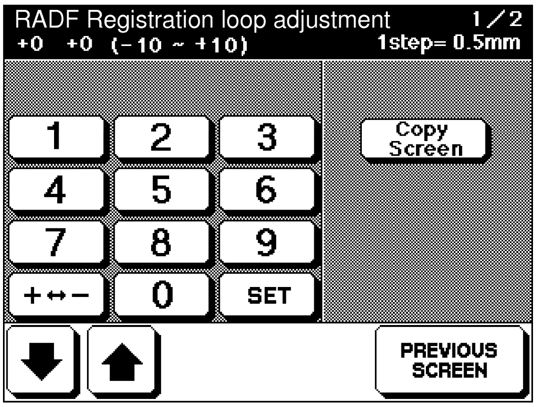
6. Optical Brake Auto Adjustment

Optical brake auto adjustment is inhibited in the field.

7. RADF Registration Loop Adjustment

This is to adjust the RADF registration loop amount.

[RADF Registration Loop Adjustment Screen]



RADF Registration loop adjustment 1/2
+0 +0 (-10 ~ +10) 1step= 0.5mm

The RADF registration loop amount adjustment consists of adjustment items during paper feed and during reverse which are selected by using the [⬇] [⬆] keys.

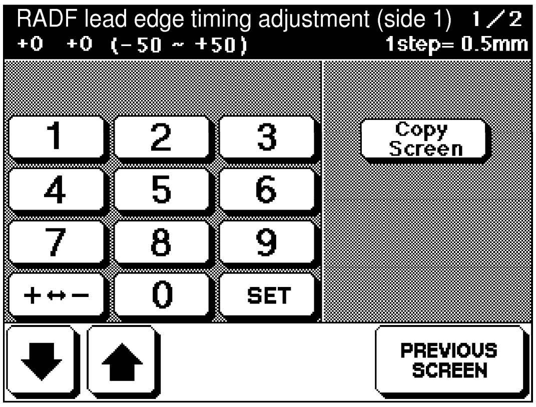
Step	Operation
1	Enter the 36 mode.
2	[36 Mode Menu Screen] Press [2] Image adjustment.
3	[Image Adjustment Menu Screen] Press [3] Timing adjustment.
4	[Timing Adjustment Menu Screen] Press [7] RADF Registration loop adjustment.
5	[RADF Registration Loop Adjustment Screen] Press the [⬇] [⬆] keys and select the item to adjust.
6	Press the [Copy Screen] key.
7	Make a copy and check the RADF registration loop amount.
8	Press the C button while pressing the P button.
9	Enter a value from the numeric keys on the screen, and press the [SET] key. Setting range: -10 (small) to 00(standard) to 10 (large) 1 step=0.5msec
10	Repeat steps 6 to 9 until the RADF registration loop amount becomes the standard value.
11	Press the [PREVIOUS SCREEN] key to return to the Timing Adjustment Menu Screen.

8. RADF Lead Edge Timing Adjustment

This is to adjust the RADF lead edge timing.

Caution: Be sure to confirm that the restart timing of Tray 1 is at the standard value before making this adjustment.

[RADF Lead Edge Timing Adjustment Screen]



RADF lead edge timing adjustment (side 1) 1 / 2
+0 +0 (-50 ~ +50) 1step= 0.5mm

The RADF lead edge timing adjustment consists of Side 1 (front side) and Side 2 (back side) adjustment items which are selected by using the ⬇ ⬆ keys.

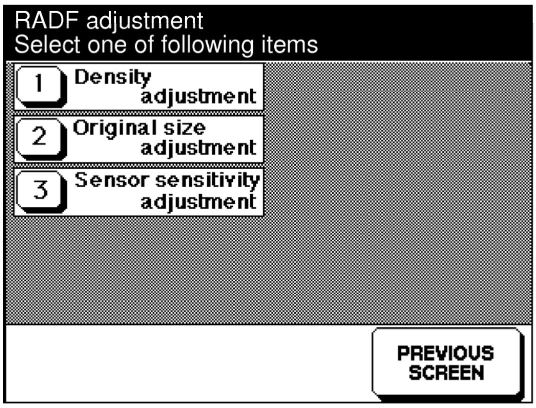
Step	Operation
1	Enter the 36 mode.
2	[36 Mode Menu Screen] Press 2 Image adjustment.
3	[Image Adjustment Menu Screen] Press 3 Timing adjustment.
4	[Timing Adjustment Menu Screen] Press 8 RADF Lead edge timing adjustment.
5	[RADF Lead Edge Timing Adjustment Screen] Press the Copy Screen key.
6	Select the double side - one side mode, and set the adjustment chart on the RADF.
7	Load A3 size paper into Tray 1, make a copy, and check the lead edge timing of the front and back sides. **Standard value: 3mm max**
8	If the RADF lead edge timing is different to the standard value, press the C button while pressing the P button.
9	Press the ⬇ ⬆ keys, and select the side (Side 1 or Side 2) of the original to adjust.
10	Enter a value from the numeric keys on the screen, and press the SET key. Setting range: -50 (slow) to +50 (fast) 1 step=0.5mm
11	Repeat steps 5 to 10 until the RADF lead edge timing becomes the standard value.
12	Press the PREVIOUS SCREEN key to return to the Timing Adjustment Menu Screen.

[11] RADF Adjustment

This is to adjust such items as the RADF density, original size and sensor sensitivity.

1. Select [2] Image adjustment in the 36 Mode Menu Screen and display the Image Adjustment Menu Screen.
2. Press [4] RADF adjustment and display the RADF Adjustment Menu Screen.

[RADF Adjustment Menu Screen]



RADF adjustment
Select one of following items

1 Density adjustment
2 Original size adjustment
3 Sensor sensitivity adjustment
PREVIOUS SCREEN

3. The RADF adjustment items are listed below.
   [1] Density adjustment
   [2] Original size adjustment
   [3] Sensor sensitivity adjustment
4. Press the number key of the item to adjust.
   The adjustment screen of the selected item will appear.
5. This RADF Adjustment Menu Screen will be redisplayed when completing all adjustments.
6. Press the [PREVIOUS SCREEN] key in the RADF Adjustment Menu Screen to return to the Image Adjustment Menu Screen.

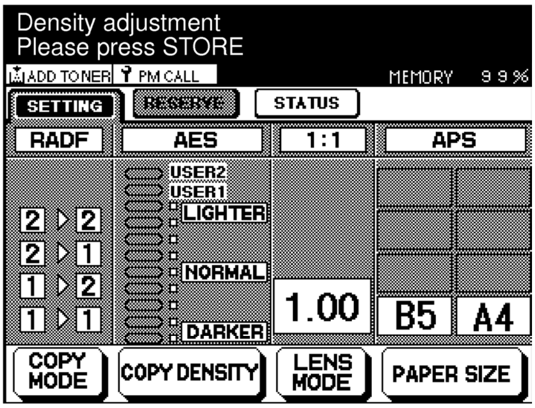
1. Density Adjustment

When the slit glass is replaced, adjustment of the density when reading originals with the RADF is required.

Before preforming this adjustment, be careful of the following items.

(1) Clean the slit glass.
(2) The white chart is not dirty or folded.
(3) Check that A3 paper is loaded in the tray 1.

[Density Adjustment Screen]



Density adjustment
Please press STORE

ADD TONER
PM CALL
MEMORY 99%
SETTING
RESERVE
STATUS
RADF
AES
1:1
APS
2 ▷ 2
2 ▷ 1
1 ▷ 2
1 ▷ 1
USER2
USER1
LIGHTER
NORMAL
DARKER
1.00
B5
A4
COPY MODE
COPY DENSITY
LENS MODE
PAPER SIZE

Step	Operation
1	Enter the 36 mode.
2	[36 Mode Menu Screen] Press [2] Image adjustment.
3	[Image Adjustment Menu Screen] Press [4] RADF adjustment.
4	[RADF Adjustment Menu Screen] Press [1] Density adjustment.
5	[Density Adjustment Screen] Set a white chart on the RADF. (Note1)
6	Press the Store button. Check for the [FIN] indication in the message display area.
7	Repeat steps 5 and 6 if "Error" is indicated in the message display area. (Note2)
8	Press the [PREVIOUS SCREEN] key to return to the RADF Adjustment Menu Screen.

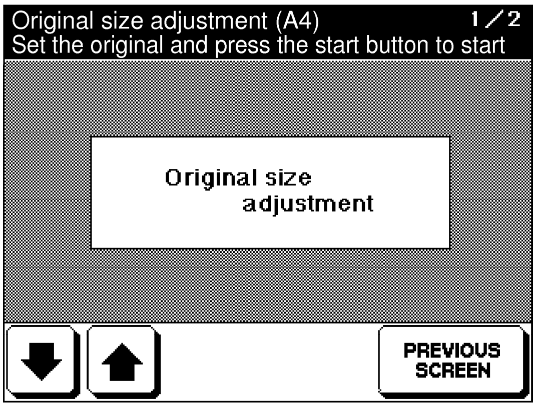
Note 1: Be sure to set the white chart in the orientation of A4. It will not be adjusted correctly in the orientation of A4R. Place the white chart so that the finer side is the front side (side to be copied).

Note 2: If "ERROR" is displayed repeatedly, there is a possibility in the adjustment of the scanner system, optics, electricrelated or parts defect.

2. Original Size Adjustment

Perform this adjustment when the RADF original size defection does not operate properly or when replacing the RADF control board (DFCB).

[Original Size Adjustment Screen]



Original size adjustment (A4) 1/2
Set the original and press the start button to start

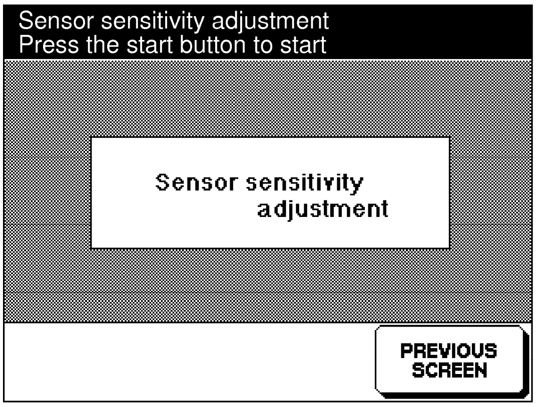
The original size adjustment contains adjustments for A4 and A5R which can be are selected by pressing the ⬇ ⬆ keys.

Step	Operation
1	Enter the 36 mode.
2	[36 Mode Menu Screen] Press ② Image adjustment.
3	[Image Adjustment Menu Screen] Press ④ RADF adjustment.
4	[RADF Adjustment Menu Screen] Press ② Original size adjustment.
5	[Original Size Adjustment Screen] Press the ⬇ ⬆ keys, and select the original size (A4 or A5R) to adjust.
6	Set the original of the size selected on the RADF, and press the Start Print button.
7	Check for the [FIN] indication in the message display area.
8	Repeat steps 5 and 6 to make adjustments for both sizes.
9	Press the PREVIOUS SCREEN key to return to the RADF Adjustment Menu Screen.

3. Sensor Sensitivity Adjustment

Perform this adjustment when replacing the RADF control board (DFCB).

[Sensor Sensitivity Adjustment Screen]



Sensor sensitivity adjustment
Press the start button to start

Sensor sensitivity adjustment

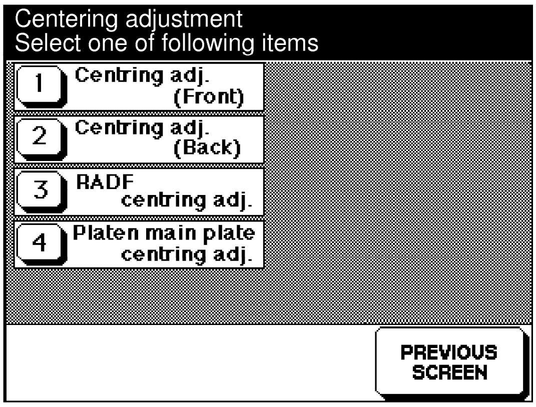
Step	Operation
1	Enter the 36 mode.
2	[36 Mode Menu Screen] Press ② Image adjustment.
3	[Image Adjustment Menu Screen] Press ④ RADF adjustment.
4	[RADF Adjustment Menu Screen] Press ③ Sensor sensitivity adjustment.
5	[Sensor Sensitivity Adjustment Screen] Press the Start Print button.
6	Check for the [FIN] indication in the message display area.
7	Press the PREVIOUS SCREEN key to return to the RADF Adjustment Menu Screen.

[12] Centering Adjustment

This adjustment adjusts the mis-centered of an image in the vertical direction to the paper feed direction.

1. Select ② Image adjustment in the 36 Mode Menu Screen and display the Image Adjustment Menu Screen.
2. Select ⑤ Centering adjustment in the Image Adjustment Menu Screen and display the Centering Adjustment Menu Screen.

[Centering Adjustment Menu Screen]



Centering adjustment
Select one of following items

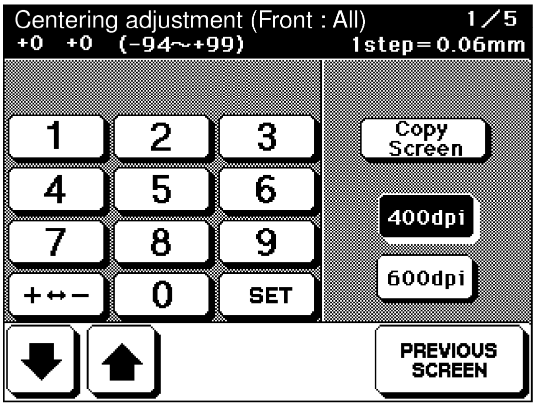
3. The centering adjustment items are listed below.
   [1] Centering adjustment (Front)
   [2] Centering adjustment (Back)
   [3] RADF centering adjustment
   [4] Platen main plate centering adjustment (*1)
4. Press the number key of the item to adjust.
   The adjustment screen of the selected item will appear.
5. This Centering Adjustment Menu Screen will be redisplayed when completing all adjustments.
6. Press the PREVIOUS SCREEN key in the Centering Adjustment Menu Screen to return to the Image Adjustment Menu Screen.

*1: Platen main plate centering adjustment is inhibited in the field.

1. Centering Adjustment (Front) – for each tray

This is for the centering adjustment for trays 1 to 5 and the by-pass feed tray.

[Centering Adjustment (Front) Screen]



Centering adjustment (Front : All) 1/5
+0 +0 (-94~+99) 1step=0.06mm

There are 7 adjustment items in the centering adjustment (Front) which are selected by using the ⬇ ⬆ keys.

1. Writing: All
2. Tray 1 (upper tray)
3. Tray 2 (lower tray)
4. Tray 3 (1000 tray)
5. Tray 4 (1500 tray)
6. Tray 5 (LT-352)
7. By-pass

Note: 1. 400dpi and 600dpi adjustments are in centering adjustment (front). 600dpi adjustment is done in the same method as 400dpi adjustment.

2. The adjustment value when adjusting by selecting All is input in Tray 1 to 5 and by-pass feed. When the adjustment value input by All is a value other than 0, however, it will exit All adjustment, but when returning to the All adjustment screen again, the adjustment value will be 0. (In other words, the All adjustment value itself will reset after the value is input in each tray, etc.)

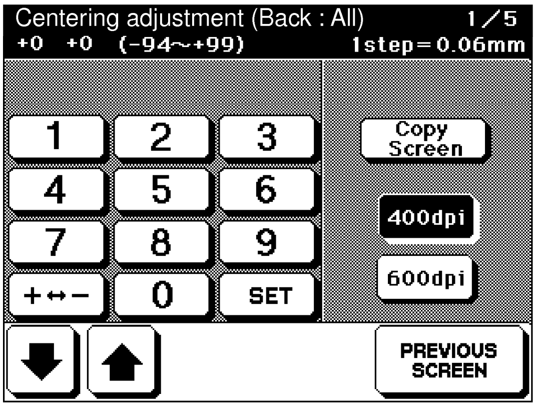
Step	Operation
1	Enter the 36 mode.
2	[36 Mode Menu Screen] Press 2 Image adjustment.
3	[Image Adjustment Menu Screen] Press 5 Centering adjustment.
4	[Centering Adjustment Menu Screen] Press 1 Centering adj (Front).
5	[Centering Adjustment Menu (Front) Screen] Select the adjustment item by pressing the ⬇ ⬆ keys.
6	Press the Copy Screen key.
7	(Adjustment for Tray 1) Load A3 size paper into Tray 1, and press the Start Print button to output a test pattern (No.16)
8	Fold the A3 paper (test pattern) in half in the short edge (landscape) orientation, and check whether the lines on the left and right overlap completely. **Standard value: ±1mm max**
9	• When mis-centered a minimum of ±2mm, a mechanical adjustment is made. (*1) • When mis-centered a maximum of ±2mm, press the C button while pressing the P button.
10	Enter a value using the numeric keys on the screen, and press the SET key. Setting range: -94 (near side) to +99 (far side)
11	Repeat steps 6 to 10 until the mis-center value becomes within the standard value.
12	The same adjustments are made to trays 2 to 5 and the by-pass feed tray by repeating steps 5 to 10. However, for Trays 2 to 5 and by-pass feed, adjustment is made with paper actually used in the tray.
13	Press the PREVIOUS SCREEN key to return to the Centering Adjustment Menu Screen.

*1: For mechanical centering adjustments for each tray, refer to the "Other Adjustments" section.

2. Centering Adjustment (Back) – for ADU

This is to adjust the mis-centered images in ADU (back side copy).

[Centering Adjustment (Back) Screen]



Centering adjustment (Back : All) 1/5
+0 +0 (-94~+99) 1step=0.06mm

There are 5 adjustment items in the centering adjustment which are selected by using the ⬇ ⬆ keys.

1. Back side (Side 2): All
2. Back side (Side 2): large (ADU: for A3)
3. Back side (Side 2): middle (ADU: for A4R, 8.5 x 11R)
4. Back side (Side 2): small (ADU: for A4, 8.5 x 11)
5. Back side (Side 2): very small (ADU: A5R Europe only)

Note:
1. 400dpi and 600dpi adjustments are in centering adjustment (back). 600dpi adjustment is done in the same method as 400dpi adjustment.
2. The adjustment value when adjusting by selecting All is input in back side (large), back side (middle), back side (small) and back side (very small). When the adjustment value input by All is a value other than 0, however, it will exit All adjustment, but when returning to the All adjustment screen again, the adjustment value will be 0. (In other words, the All adjustment value itself will reset after the value is input in each size in one batch.)

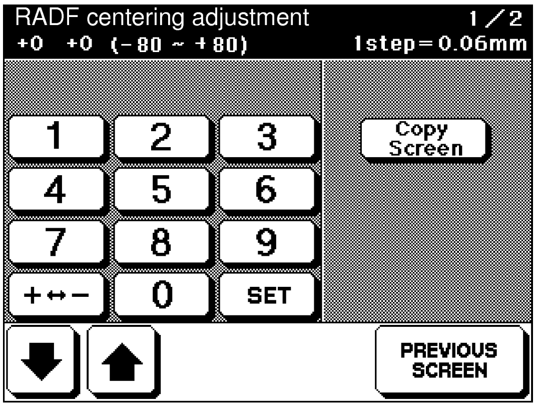
Step	Operation
1	Enter the 36 mode.
2	[36 Mode Menu Screen] Press 2 Image adjustment.
3	[Image Adjustment Menu Screen] Press 5 Centering adjustment.
4	[Centering Adjustment Menu Screen] Press 2 Centering adj (Back).
5	[Centering Adjustment (Back) Screen] Select the adjustment item by pressing the ⬇ ⬆ keys.
6	Press the Copy Screen key.
7	(Adjustment for large sizes) Load A3 size paper into Tray 1, and press the Start Print button to output a test pattern (No.16) in the double-side mode.
8	Check to see whether or not the center line (on front and back side) of the test pattern overlap. **Standard value: ±1mm max**
9	• When mis-centered a minimum of ±2mm, a mechanical adjustment is made. (*1) • When mis-centered a maximum of ±2mm, press the C button while pressing the P button.
10	Enter a value using the numeric keys, and press the SET key. Setting range: -94 (near side) to +99 (far side)
11	Repeat steps 6 to 10 until the mis-center value becomes within the standard.
12	The same adjustments are made to size by repeating steps 5 to 10. A4R (8.5 x 11R) .... Back side (Side 2): middle A4 (8.5 x 11) .... Back side (Side 2): small A5R .... Back side (Side 2): very small
13	Press the PREVIOUS SCREEN key to return to the Centering Adjustment Menu Screen.

*1: For mechanical centering adjustments for each tray, refer to the "Other Adjustments" section.

3. RADF Centering Adjustment

This is to adjust the mis-centered read images during RADF copy.

[RADF Centering Adjustment Screen]



RADF centering adjustment 1/2
+0 +0 (-80 ~ +80) 1step=0.06mm

There are two adjustment items in the RADF centering adjustment which are selected by using the ⬇ ⬆ keys.

1. Side 1 (Front)
2. Side 2 (Back)

Step	Operation
1	Enter the 36 mode.
2	[36 Mode Menu Screen] Press 2 Image adjustment.
3	[Image Adjustment Menu Screen] Press 5 Centering adjustment.
4	[Centering Adjustment Menu Screen] Press 3 RADF centering adj.
5	[RADF Centering Adjustment Screen] Press the Copy Screen key. Set the adjustment chart on the RADF, and load A3 size paper into Tray 1.
6	Press the Start Print button to make a test copy. *For RADF (back side), make a copy in the double-side → single-side mode, and make adjustments using the 2nd sheet that was output.
7	Fold the output copy in half in the conveyed direction, and check whether or not the right and left lines overlap completely. **Standard value: ±1mm max**
8	When the lines are not overlapped, press the C button while pressing the P button.
9	Select the side of the original (Side 1 or Side 2) to adjust by using the ⬇ ⬆ keys.
10	Enter a value using the numeric keys, and press the SET key. Setting range: -80 (near side) ~ +80 (far side)
11	Repeat steps 5 to 10 until the mis-center value becomes within the standard value.
12	Press the PREVIOUS SCREEN key to return to the Centering Adjustment Menu Screen.

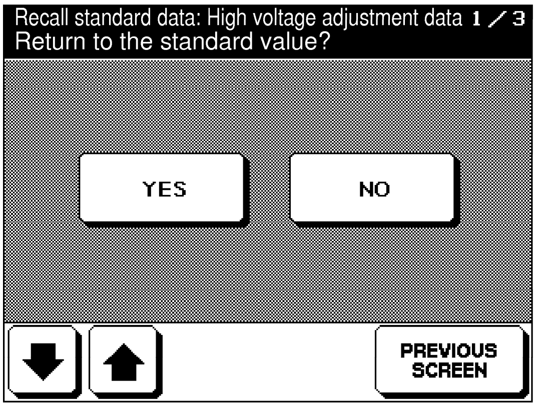
[13] Platen Density Adjustment

Platen density adjustment is inhibited in the field.

[14] Recall Standard Data (Image Adjustment)

This is to return each set value of the image adjustment to the standard value (data after adjustment production).

[Recall Standard Data (Image Adjustment) Screen]


Recall standard data: High voltage adjustment data 1 / 3
Return to the standard value?

Step	Operation
1	Enter the 36 mode.
2	[36 Mode Menu Screen] Press ② Image adjustment.
3	[Image Adjustment Menu Screen] Press ⑦ Recall standard data.
4	[Recall Standard data Screen] Select the item to recall to the standard data by using the ⬇ ⬆ keys. *1: Item to select
5	Check the selected item in the message display area.
6	Press the YES key to recall the data of the item selected.
7	Press the NO or the PREVIOUS SCREEN key when cancelling or finishing recall standard data, and to return to the Image Adjustment Menu Screen.

*1: Item to select

- Scale plate adjustment
- Magnification adjustment
- Timing adjustment
- RADF adjustment
- Centering adjustment
- Platen density adjustment
  (Platen density adjustment is inhibited in the field.)

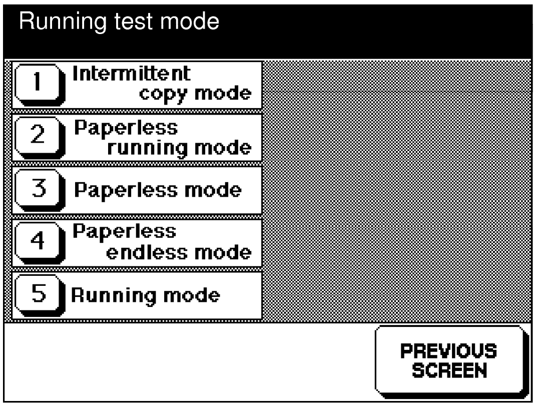
[15] Running Test Mode

This is a test for during continuous copy operation.
Select ③ Running test mode in the 36 Mode Menu Screen.

The following items can be selected.

1. Running mode 1 (Intermittent copy mode)
   Running mode 1 is an intermittent copy mode. In this mode, after the set number of copy operations has been completed, the machine goes into the copy ready status, waits 0.5 sec, then starts the same operation again.
2. Running mode 2 (Paperless intermittent copy mode)
   Running mode 2 is a paperless intermittent copy mode. It makes copies at roughly the same timing as for a normal copy, without performing paper detection or jam detection. Also, like running mode 1, after the set number of copy operations has been completed, the machine goes into the copy ready status, waits 0.5 sec, then starts the same operation again.
3. Running mode 3 (Paperless mode)
   Running mode 3 is a paperless mode. It makes copies at roughly the same timing as for a normal copy, without performing paper detection or jam detection.
4. Running mode 4 (Paperless endless mode)
   Running mode 4 is a paperless endless mode. It automatically sets the copy quantity to infinity. Also, like running mode 3, it makes copies at roughly the same timing as for a normal copy, without performing paper detection or jam detection.
5. Running mode 5
   Running mode 5 is a process running mode. It consists of running mode 4 plus an operation consisting of an optics each-time scan and an automatic paper feed tray change.

[Running Test Mode Menu Screen]


Running test mode
1 Intermittent copy mode
2 Paperless running mode
3 Paperless mode
4 Paperless endless mode
5 Running mode
PREVIOUS SCREEN

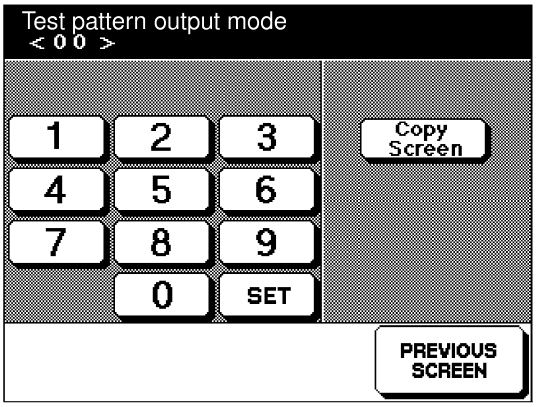
Step	Operation
1	Enter the 36 mode.
2	[36 Mode Menu Screen] Press ③ Running test mode.
3	[Running Test Mode Menu Screen] Press one of the 1 to 5 mode keys.
4	[Basic Screen] Press the Start Print button.
5	Press the Stop/Clear button to stop operation after checking the copy operation.
6	Turn the main switch off to cancel the running test mode.

[16] Test Pattern Output

Output a test pattern using the procedure described below. Select ④ Test pattern output mode in the 36 Mode Menu Screen. Test Pattern Output Mode Screen will appear.

Caution: Do not operate for any mode that is not particularly specified.

[Test Pattern Output Mode Screen]


Test pattern output mode
< 0 0 >
1
2
3
4
5
6
7
8
9
0
SET
Copy Screen
PREVIOUS SCREEN

Step	Operation
1	Enter the 36 mode.
2	[36 Mode Menu Screen] Press ④ Test pattern output mode.
3	[Test Pattern Output Mode Screen] Enter a pattern number according to the desired test pattern from the numeric keys, then press the [SET] key.
4	Press the [Copy Screen] key
5	[Basic Screen] Press the Start Print button, and output a test pattern.
6	To output a different test pattern, press the C button while pressing the P button, and repeat steps 3 to 5.
7	To end the test pattern output operation, press the [PREVIOUS SCREEN] key .

No. 01 Overall halftone

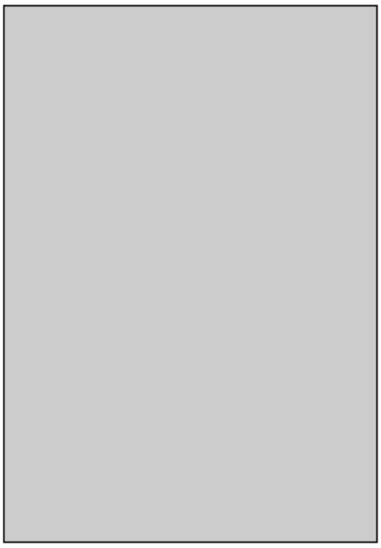
[Check item]

- When the density is set to 70 (halftone)
  If white stripes, black stripes, or uneven density can be seen, determine which of the scanner system and the printer system is abnormal.
- When the density is set to 0 (white)
  If the test pattern is fogged, determine which of the scanner system and the printer system (writing section, process section) is abnormal.
- When the density is set to 255 (black)
  If the density is light, determine which of the scanner system and the printer system is abnormal.

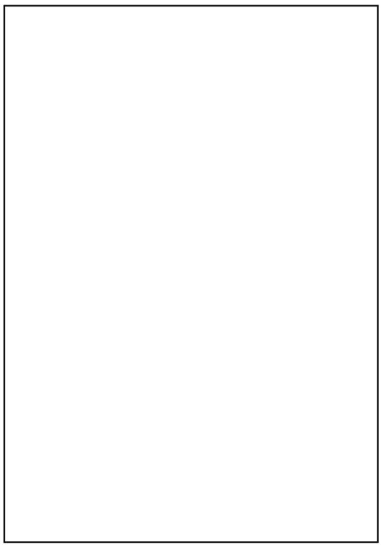
* The above density setting is a typical value, and details of density setting can be referred to in [17] Test Pattern Density Setting.

Test pattern

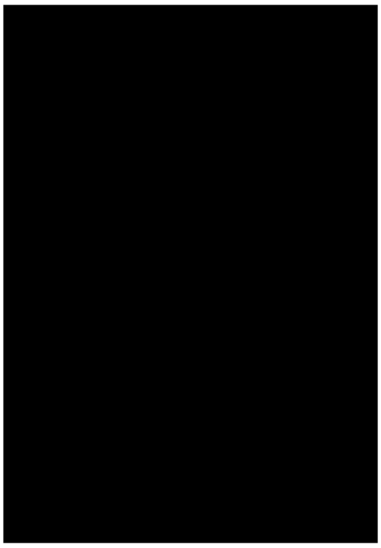
<When the density is set to 70.>



<When the density is set to 0.>



<When the density is set to 255.>

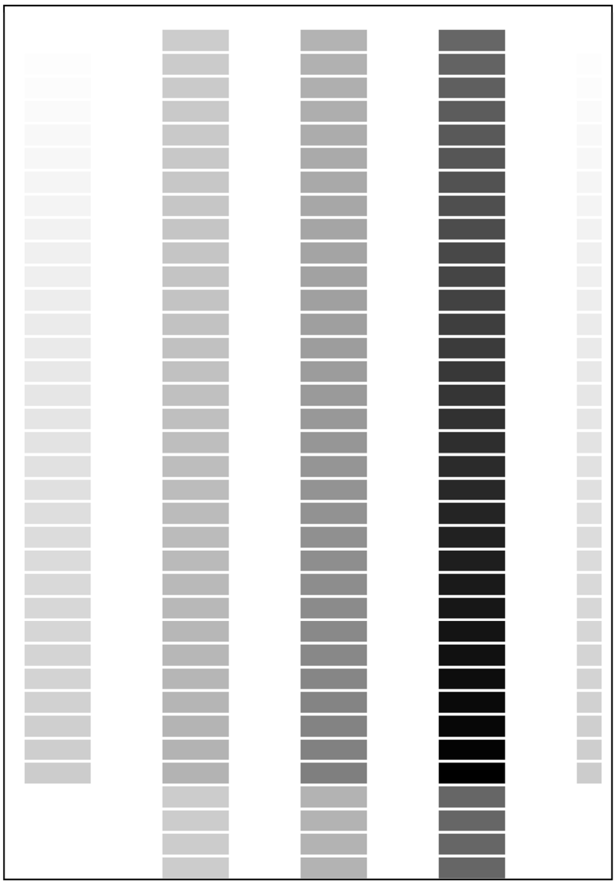


No. 02	Gray scale pattern

[Check item]

If the test pattern is fogged or the density is light, determine which of the processing system and γ correction is abnormal. If the copy image is abnormal despite this test pattern being normal, either the image processing system or the scanner system is abnormal.

Test pattern

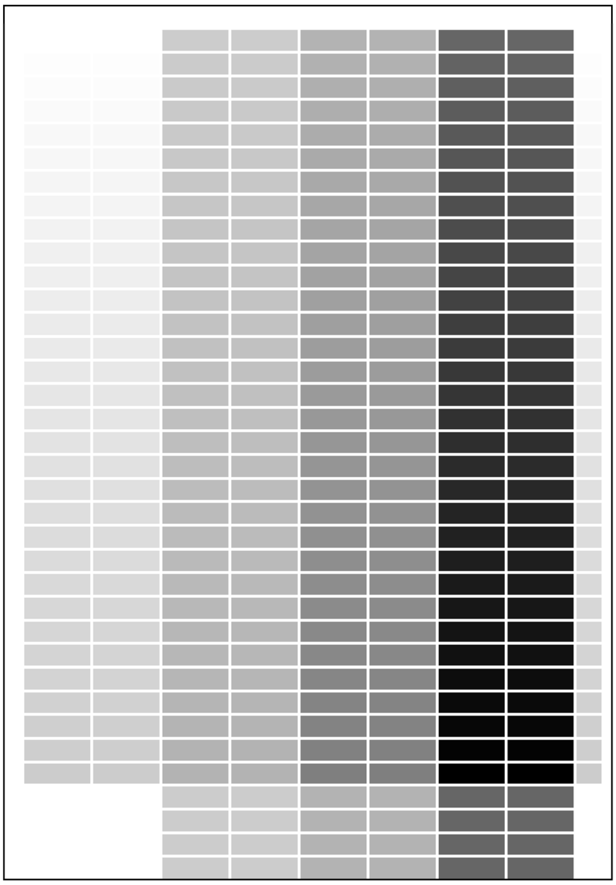


No. 03	**Gray scale pattern**

[Check item]

If you find an abnormality in the test pattern, check to see if the two lasers are emitting light normally.

Test pattern

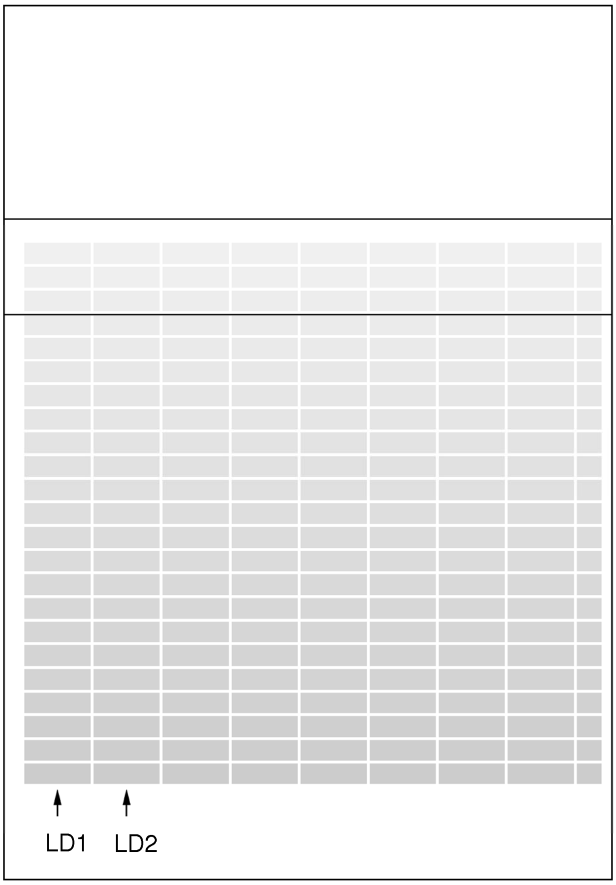


No. 05 Gray scale pattern

[Check item]

If you find an abnormality in the test pattern, check to see if the outputs of the lasers are uniform.

Test pattern

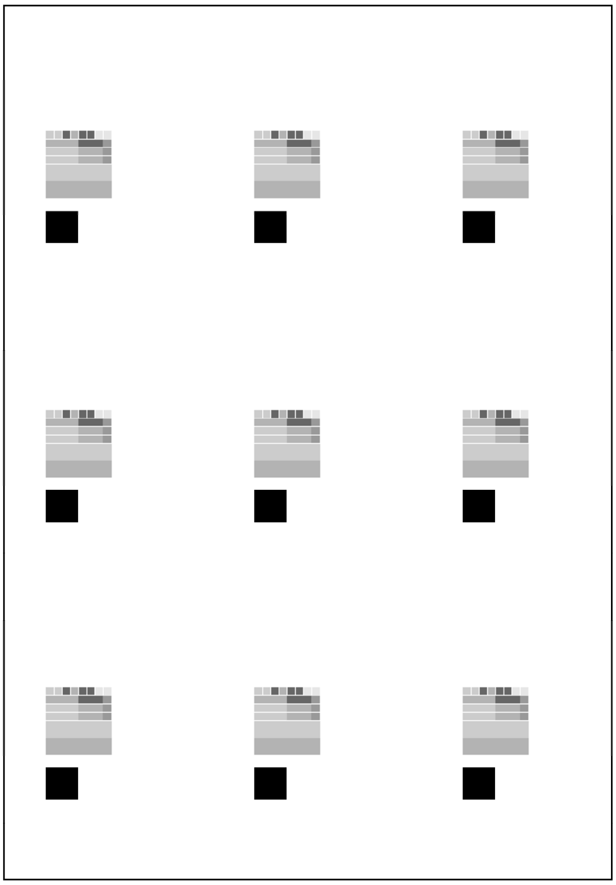


No. 11 Beam misalignment check

[Check item]

If you find an abnormality in the test pattern, check to see if position correction of the two laser beams takes place normally.

Test pattern

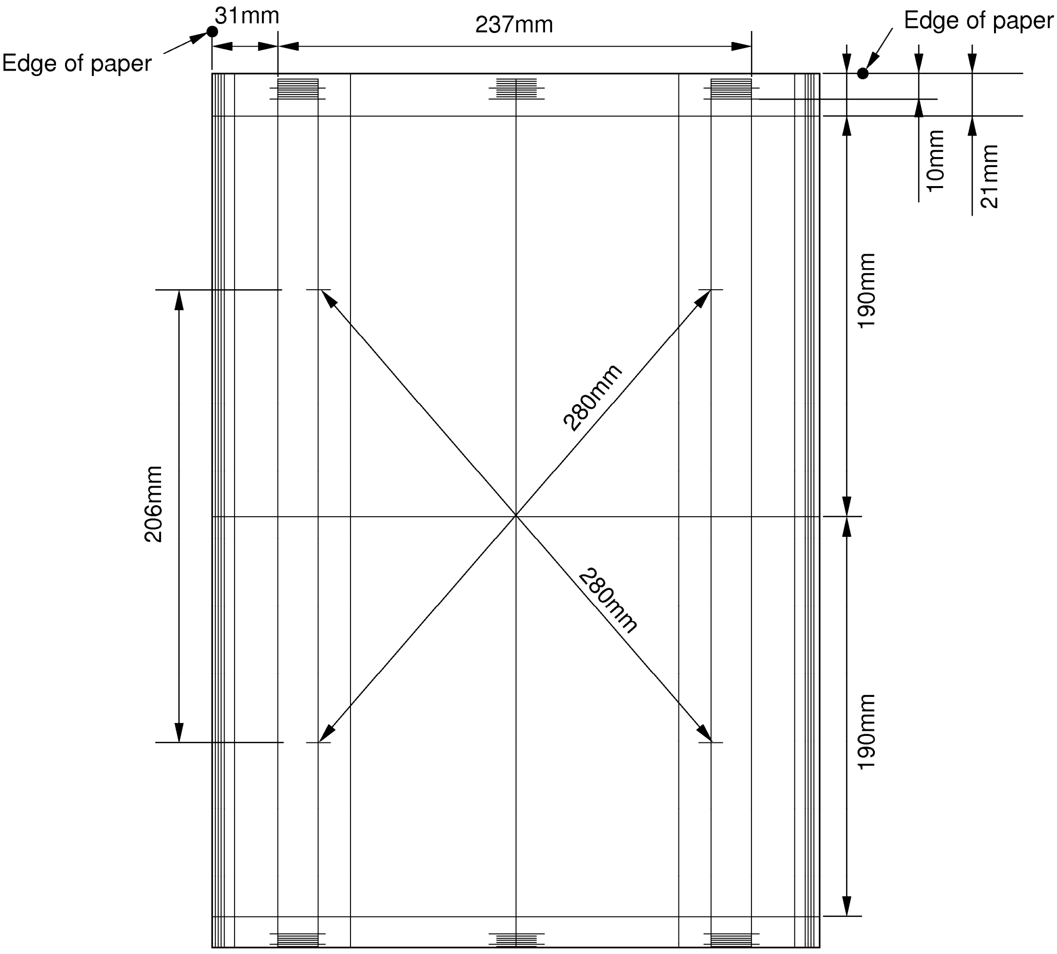


No. 16 Linearity evaluation pattern

[Check item]

Judge from this test pattern which of the scanner system and the printer system is abnormal. Items that can be checked include horizontal magnification, vertical magnification, tilt image, and leading edge timing of the printer system. If the copy image is defective despite no abnormality being visible on the test pattern, the scanner system is defective.

Test pattern


31mm
237mm
Edge of paper
Edge of paper
10mm
21mm
190mm
280mm
280mm
206mm
190mm

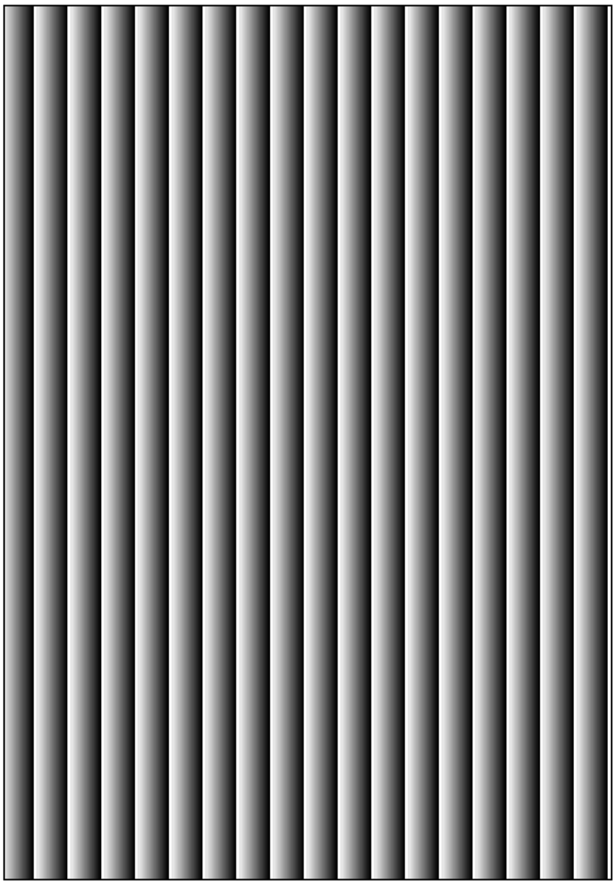
No. 30

Read GA built-in pattern

[Check item]

This test pattern is intended to judge whether or not the abnormal section is located before the image processing board. If the test pattern is an 8-bit output and is normal, the fault lies in the CCD board before the image processing board.

Test pattern

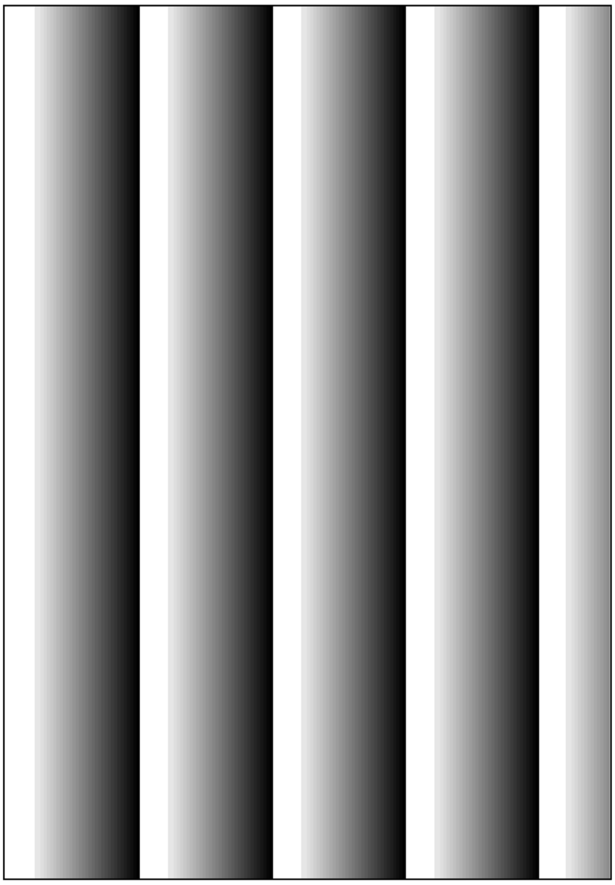


No. 32	Copy γ GA built-in pattern

[Check item]

This test pattern is intended to judge whether or not the electronic RDH board is abnormal.
There are two test patterns which correspond to the 8-bit mode in which the electronic RDH is not used, and the mode in which it is used, respectively. The test pattern checks the state of the electronic RDH board. If an abnormality is found when an electronic RDH is used with several copies of the test pattern output, there is an abnormality in the electronic RDH. In this case, an abnormality in the test pattern excludes any difference in error dispersion.

Test pattern

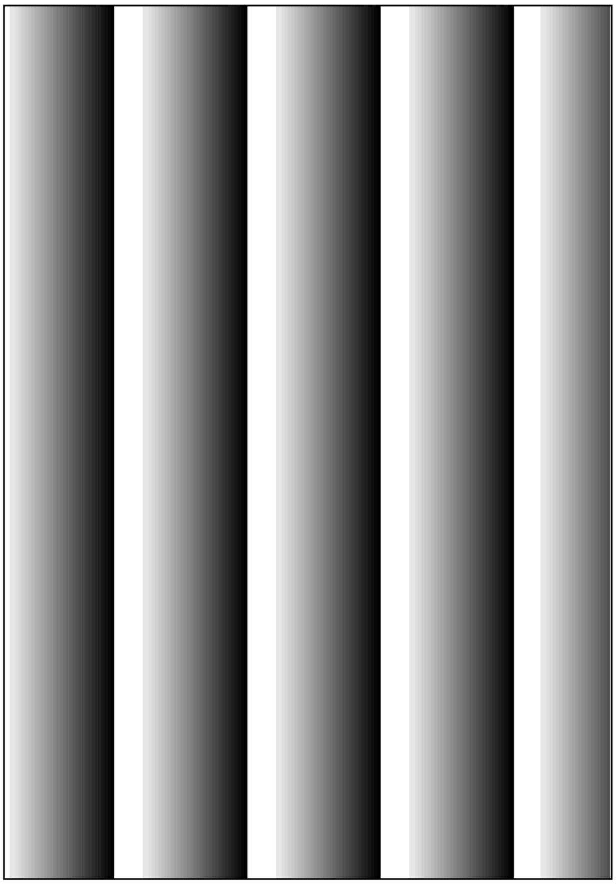


No. 36	Write GA built-in pattern

[Check item]

This test pattern is intended to judge whether or not the cause of an abnormality is located in or after the image processing board. If the test pattern is abnormal, there is an abnormality in or after the image processing board (PWM function or after).

Test pattern



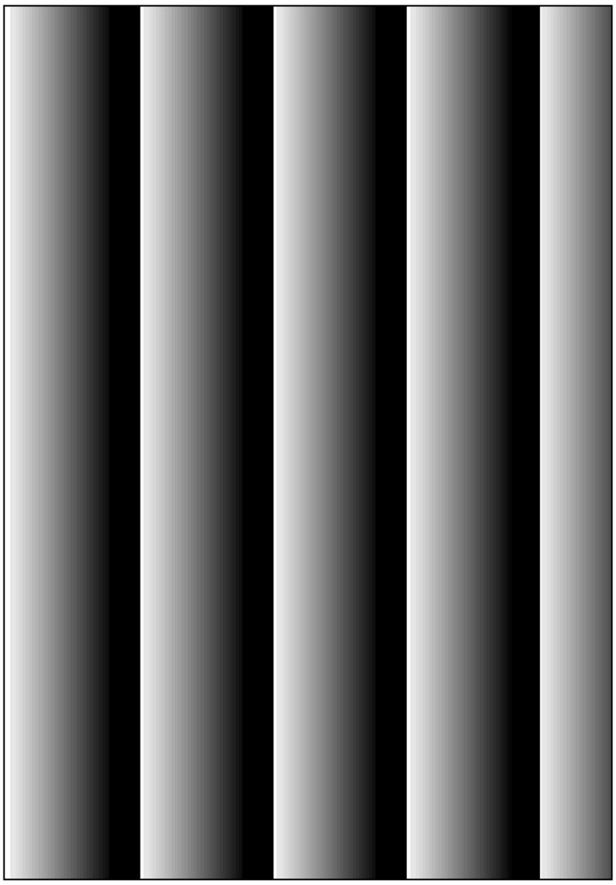
No. 37	Electronic RDH GA built-in pattern

[Check item]

This test pattern is intended to determine if the electronic RDH board or image processing board is abnormal in the case where the copy image is abnormal despite the 36 mode pattern being normal.

If the 36 mode pattern is normal but the test pattern is abnormal, there is an abnormality in either the electronic RDH or the image processing board.

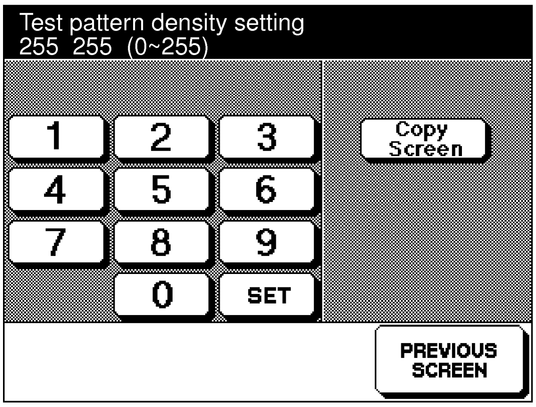
Test pattern



[17] Test Pattern Density Setting

Set the density of the test pattern using the procedure described below.
Select 5 Test pattern density mode in the 36 Mode Menu Screen and display the Test Pattern Density Setting Screen.

[Test Pattern Density Setting Screen]

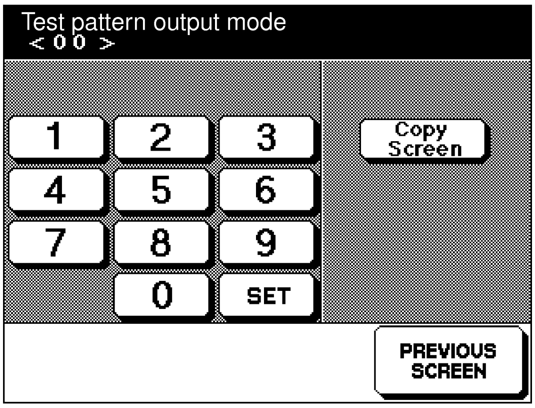

Test pattern density setting
255 255 (0~255)

Step	Operation
1	Enter the 36 mode.
2	[36 Mode Menu Screen] Press 5 Test pattern density mode.
3	[Test Pattern Density Setting Screen] Enter a value (0 (white) to 255 (black)) from the numeric keys, then press the SET key
4	Press the Copy Screen key
5	[Basic Screen] Press the Start Print button, and output a test pattern.
6	To output a different test pattern, press the C button while pressing the P button, and repeat steps 3 to 5.
7	To end the test pattern density setting, press the PREVIOUS SCREEN key .

[18] Service data Output

Output service data using the procedure described below.
Select 4 Test pattern output mode in the 36 Mode Menu Screen and display the Test Pattern Output Mode Screen.
Caution: Do not operate for any mode that is not particularly specified.

[Test Pattern Output Mode Screen]


Test pattern output mode
< 0 0 >

Step	Operation
1	Enter the 36 mode.
2	[36 Mode Menu Screen] Press 4 Test pattern output mode.
3	[Test Pattern Output Mode Screen] Enter a data number (40 to 47) from the numeric keys according to the desired output data, and press the SET key.
4	Press the Copy Screen key
5	[Basic Screen] Press the Start Print button, and output a service data.
6	To output a different service data, press the C button while pressing the P button, and repeat steps 3 to 5.
7	To end the test pattern output operation, press the PREVIOUS SCREEN key .

Service data printing item

The relationship between the No. to be input using the test pattern output mode screen and the output contents is shown below.

Input No.	Description	Number of items
40	Field monitor mode *1	46
41	Copy quantity limit for each replacement part (Refer to [7] "Copy count by parts to be replaced".)	30
42	Copy quantity count for each replacement part (Refer to [7] "Copy count by parts to be replaced".)	30
43	ADF original feed count (Refer to [6] "Data collection 1".)	2
44	Number of jams for each jam code (Refer to [6] "Data collection 4".)	63
45	Number of copies for each operation mode (Refer to [6] "Data collection 5".)	68
46	Number of SCs for each F code (Refer to [6] "Data collection 6".)	92
47	Number of SCs for each E code (Refer to [6] "Data collection 7".)	61

*1 List of data items for the field monitor mode

Classification	Data No.	Item
Common	001	Max density error 1 count
	002	Max density error 2 count
	003	Max density error 3 count
	004	γ error 1 count
	005	γ error 2 count
	006	Separation claw ON timing
	007	Separation claw OFF timing
	008	Max density control threshold

Classification	Data No.	Item
Normal paper 400 dpi	009	Charging current
	010	Developing bias
	011	Transfer current
	012	Separation AC
	013	Separation DC
	014	Grid voltage
	015	Developing sleeve rotational speed
	016	Laser power 1 (MPC1)
	017	Laser power 2 (MPC2)
	018	PWMOFFSET1
	019	PWMOFFSET2
Normal paper 600 dpi	020	Charging current
	021	Developing bias
	022	Transfer current
	023	Separation AC
	024	Separation DC
	025	Grid voltage
	026	Developing sleeve rotational speed
	027	Laser power 1 (MPC1)
	028	Laser power 2 (MPC2)
	029	PWMOFFSET1
	030	PWMOFFSET2
Thick paper Common	031	Charging current
	032	Developing bias
	033	Transfer current
	034	Separation AC
	035	Separation DC
	036	Grid voltage
Thick paper 400 dpi	037	Developing sleeve rotational speed
	038	Laser power 1 (MPC1)
	039	Laser power 2 (MPC2)
	040	PWMOFFSET1
	041	PWMOFFSET2
Thick paper 600 dpi	042	Developing sleeve rotational speed
	043	Laser power 1 (MPC1)
	044	Laser power 2 (MPC2)
	045	PWMOFFSET1
	046	PWMOFFSET2
Common	047	L detection adjustment value
	048	Control (C) ROM version
	049	Operation (O1) ROM version
	050	Operation (O2) ROM version
	051	Operation (O3) ROM version
	052	Operation (O4) ROM version
	053	Image processing (IP) ROM version
	054	Total count

47 MODE/MULTI MODE

## [1] 47/Multi Mode Setting Method

1. 47 mode

This mode provides self-diagnostic functions (input/output check function) to check and adjust the various signals and loads.

2. 47 mode operation method

(1) To start 47 mode
- a. Turn off the main switch.
- b. Turn the main switch back on while holding down 4 and 7 of the copy quantity setting button.
- c. Check is the 47 mode is started up when "I/O check mode" is displayed in the message area.

(2) Input check
- a. Using the copy quantity setting button, enter the code for the desired signal (sensor, etc.) by referring to the I/O check code list.
- b. The entered code will be displayed in <>, the second row of the message area.
- c. The firstly entered number will be shifted to the left end.
- d. Check on the code status displayed with H or L in IN:, the second row of the message area.

Caution:

Compare the input signal status with one displayed in the message area. H and L show the signal level inputted in the CB (control board).

(3) Output check
- a. Using the copy quantity setting button, enter the code for the desired output load by referring to the I/O check code list.
- b. Press Start button.
  Depending on the output, a load will be activated or a signal will be outputted.

Start button	Code	Description
Before pressing	Input	Input signal level indication
After pressing	Output	Output load operation/signal

(4) To end 47 mode
- a. Press stop/clear button to cancel the operation.
- b. Turn off the main switch to cancel the 47 mode.

Step	Operation
1	Turn on the main switch while holding down 4 and 7 of the copy quantity setting button.
2	[47 Mode (I/O Check Mode) Screen] Using the copy quantity setting button, enter the code.
3	Check on the input signal check result displayed in IN:, the second row of the message area.
4	To check the output load, press Start Print button.
5	Press Stop/Clear button to end the output check.
6	For other checks, enter new code using the copy quantity setting button.
7	Turn off the main switch to cancel the 47 mode.

Reference:
- No data will be displayed on the second row of the message area when the 47 mode is activated. If any number is entered, it will be displayed.
- For moving to the other code, simply enter new code.
- The new code will overwrite the old one.
- To reset the machine without turning off the power, press Stop/Clear button while holding down P button. (The 47 mode will be in the initial state.)

3. Multi mode

This mode exists within the 47 mode. It enables multiple I/O checks from a single I/O check code.

4. Multi mode operation method

Follow the methods shown below after starting up the 47 mode.

(1) To check input

a. Using the copy quantity setting button, enter the check code for the desired I/O.

b. The 47 mode code will be displayed in <>, the second row of the message area.

c. Press P button.

d. "-" (hyphen) will be displayed, following the 47 mode code in <>.(only codes that support the multi mode can be used)

e. Enter the desired multi number using the copy quantity setting button. (Refer to the multi mode list.)

f. The multi number will be displayed, following the 47 mode code and "-" in <>.

[I/O Check Mode Message Area]

```
I/O Check Mode
<10-01> IN:--          OUT:--
```

g. Press P button.

h. Check on the code status displayed with H or L in IN:, the second row of the message area.

(2) To check output

a. Press Start Print button.

b. Press Stop/Clear button after the output check is done.

(3) To end multi mode

a. Turn off the main switch to cancel the 47 mode (multi mode)

Step	Operation
1	Enter the 47 mode.
2	[47 Mode (I/O Check Mode) Screen] Using the copy quantity setting button, enter the code.
3	Press P button.
4	Enter the multi number using the copy quantity setting button.
5	Press P button.
6	Check on the input signal check result displayed in IN:, the second row of the message area.
7	To check the output load, press Start Print button.
8	Press Stop/Clear button to end the output check.
9	Turn off the main switch to cancel the 47 mode.

Reference:

- To check another multi number in the same code, press P button after completing the step 8. Only data shown in <> will be cleared, then enter another multi number.
- To return to the normal 47 mode, press Stop/Clear button while holding P button after completing the step 8. (The screen will return to the initial state in the 47 mode.)

[2] Initial Setting

- All adjustment data is totally returned to the data value when the machine is delivered from a factory.

1. Setting method

Step	Operation (display)	Operation point
1	Turn ON the main switch while pressing the copy quantity setting buttons 4 and 7.	Copy quantity setting button Main switch
2	Press “093” by means of the copy quantity setting button. Confirm that 93 appears in the message display area.	Copy quantity setting button
3	Press the Start Print button.	Start Print button.

[3] Adjustment Mode List

- All adjustment data can be checked.
- However, adjustment (change of data value) in this mode cannot be conducted.

1. Setting method

Step	Operation (display)	Operation point
1	Turn ON the main switch while pressing the copy quantity setting buttons 4 and 7.	Copy quantity setting button Main switch
2	Press “094” by means of the copy quantity setting button. Confirm that 94 appears in the message display area.	Copy quantity setting button
3	Press the Start Print button.	Start Print button.

[4] Input Check List

Classification	Code	Symbol	Multi mode	Name		State of display and signal source	
						H	L
Analog signal	001	TLD		Toner level detecting signal		Enough toner	Less toner
	002	DB		Internal temperature detecting signal		*	*
	003	TH1		TH1 signal		*	*
	004	TH2		TH2 signal		*	*
	005			Humidity sensor signal		*	*
	006						
	007	TCSB		Dmax MONI signal		*	*
	008	TCSB		Dmax signal		*	*
	009	TCSB		Drum jamming signal		*	*
Paper feed	010	PS12,13,15, 141,140	M	No-paper detecting signal	<Contents of M> -Common to 10, 12, and 19- 1: Upper tray 2: Lower tray 3: LCT right 4: LCT left 6: LT-352 -Only to 10- 5: By-pass feed -Only to 16- 1: Upper tray 2: By-pass feed	No paper OFF	Paper ON
	012	PS16,17, 143,142	M	Tray upper limit detecting			
	016		M	Paper size signal <Display for each paper size> A3:1, B4:6, A4R:2, A4:3, B5R:7, B5:8, B6R:9, A5R:4,F4:10			
	019	PS20,21,210, 200	M	Pre-try detecting		OFF	ON
Paper feed and conveyance	020	PS14 PS18 PS19 PS144 PS146	M	Paper feed sensor signal 1: Regist. PS 2: No feed PS 3: Optics sync PS 4: LCT conveyance PS (1000) 5: LCT conveyance PS (1500)		OFF	ON
	022	PS27		Paper exit sensor signal		ON	OFF
	023	PS11 PS160 PS306 PS24	M	Interlock signals 1: Paper feed and conveyance door 2: LCT conveyance door 3: Left side door 4: Sensing whether or not the fixing lever is closed		OFF	ON
	024	PS20 PS21 PS210 PS200 PS802	M	Pre try signal 1: Pre try upper 2: Pre try lower 3: LCT pre try (1000) 4: LCT pre try (1500) 5: LT pre try (LT-352)		OFF	ON
Optics	030	PS7 PS3 PS5 PS4 PS45 PS2 PS28 PS9 PS29	M	Optics sensor signals 1: Optics Timing 2: Shading position 3: Optics return 4: Paper feed restart 5: APS timing 6: Scanner brake 7: Scan EE 8: ADF home position 9: ADF brake		OFF	ON

Classification	Code	Symbol	Multi mode	Name	State of display and signal source	
					H	L
RADF	060		M	DF-312 I/O check	ON with paper	OFF no paper
		PS305		0: No originals detection		
		MS301		1: Cover open/close	Open	Close
		PS301		2: RADF open/close		
		PS306		3: Original registration	ON with paper	OFF no paper
		PS308		4: Original feed detection		
		PS309		5: Original reversal detection		
		PS307		6: Original exit detection		
		PS302		7: Original size detection 1		
		PS303		8: Original size detection 2		
		VR301		9: Original size detection VR		
		PS310		10: Final original detect	With paper	No paper
△1 FS-106	076		M	FS106 I/O check	OFF	ON
		PS1		0: Sub-tray upper limit detection		
		PS2		1: Tray upper limit detection	ON	OFF
		PS3		2: Tray lower limit detection	OFF	ON
		PS4		3: FIN entrance passage detection		
		PS5		4: Stacker conveyance passage detection		
		PS6		5: Paper exit 1 detection		
		PS8		7: Alignment plate HP detection		
		PS9		8: Paper exit belt HP detection		
		PS11		10: Stapler movement HP detection		
		PS12		11: Paper exit opening detection		
		PS14		13: Stapler (R) no staple detection	No staple	With staple
		PS15		14: Stapler (R) HP detection	OFF	ON
		PS16		15: Stapler (F) no staple detection	No staple	With staple
		PS17		16: Stapler (F) HP detection	OFF	ON
		PS18		17: Roller shift HP detection		
		PS24		18: Stapler R ready	Busy	Ready
		PS20		19: Stacker no paper detection	OFF	ON
		PS21		20: Stapler rotation HP1 detection		
		PS22		21: Stapler rotation HP2 detection		
		MS1		22: Interlock		
		PS25		23: Stapler F ready	Busy	Ready
ADU	080	ADU ADD		ADU interlock signal	Release	Connect
	082			Paper detection signals	ON	OFF
		PS152		1: ADU paper feed		
		PS153		2: ADU reversal detect	OFF	ON
		PS303		3: ADU gate		
		PS155		4: ADU paper exit 2		
		PS156		5: ADU paper exit 3		
		PS151	M	6: ADU no paper detect		
Reversal paper feed	085			Reversal paper feed signals	ON	OFF
		PS301		1: Reversal point		
		PS302		2: Reversal paper feed point		
		PS304		3: ADU paper feed	OFF	ON
		PS305		4: Reversal paper exit		
		PS306		6: Reversal paper exit interlock		

△1

Classification	Code	Symbol	Multi mode	Name	State of display and signal source	
					H	L
FS-108BM	076	PS1	M	0: Sub-tray paper exit	OFF	ON
		PS2		1: Tray upper limit		
		PS3		2: Tray lower limit		
		PS4		3: FIN entrance passage		
		PS5		4: Stacker conveyance passage		
		PS6		5: Paper exit 1		
		PS7		6: Staple paper exit upper limit		
		PS8		7: Alignment plate/upper HP		
		PS9		8: Paper exit belt HP		
		PS10		9: Paper exit 2		
		PS11		10: Stapler movement HP		
		PS12		11: Paper exit opening		
		PS13		12: Entrance paper detection		
		PS14		13: Stapler rotation HP		
		PS15		14: Tray no paper detection		
		PS18		15: Roller shift HP		
		PS20		16: Stacker no paper detection		
		PS21		17: Stapling and folding stopper release motor HP		
		PS22		18: Folding knife HP		
		PS23		19: Stapling and folding stopper HP		
		PS24		20: Alignment plate/lower HP		
		PS25		21: Folding paper exit		
		PS26		22: Folding passage/2		
		PS27		23: Folding stopper HP		
		PS28		24: Folding passage/1		
		M1		32: Motor lock signal	Lock	Operating
		M7		33: Motor lock signal		
		M20		34: Motor lock signal		
		–		37: Folding unit	No unit	With unit
		–		39: PI-108	No PI-108	With PI-108
		–		40: Stapler (R) abnormality EC02	Normal	Abnormal
		–		41: Stapler (R) abnormality EC01		
		–		42: Stapler (R) abnormality EC00		
		–		43: Stapler (R) Ready signal	Busy	Ready
		–		44: Stapler (R) Busy signal	Ready	Busy
		–		45: Stapler (R) Clear-demand signal	Normal	Demand
		–		46: PI-108 start key	OFF	ON
		–		47: PI-108 mode key		
		–		48: Stapler (F) abnormality EC02	Normal	Abnormal
		–		49: Stapler (F) abnormality EC01		
		–		50: Stapler (F) abnormality EC00		
		–		51: Stapler (F) Ready signal	Busy	Ready
		–		52: Stapler (F) Busy signal	Ready	Busy
		–		53: Stapler (F) Clear-demand signal	Normal	Demand
		PS208		54: Sheet set	OFF no paper	ON with paper
		PS209		55: Pre no paper		
		PS201		56: Sheet passage		
		PS202		57: No sheet		
		PS203		58: Sheet tray lower limit	OFF	ON
		PS204		59: Sheet tray upper limit		
		PS205		60: Sheet size (small)	OFF no paper	ON with paper
		PS206		61: Sheet size (large)		
		PS207		62: Paper exit cover open/close detection	Open	Close
		VR1		63: Sheet width	Small size	Large size
		MS1		64: Interlock	Open	Close

[5] Output Check List

Classification	Code	Symbol	Multi mode	Name	Impossible to install/ change to write in the field
Analog signal	000	L1		Exposure lamp	
	001	M10		Toner supply motor	
	002	HV1	M	Charging	×
	003	HV2	M	Transfer	×
	004	HV2	M	Separation (AC)	×
	005	HV2		Transfer + Separation (DC)	×
	006	HV2	M	Separation (AC + DC)	×
	007	HV1	M	Grid	
	008		M	Dmax / γ LED	×
	009			JAM detecting LED	
	010	HV1		Transfer guide plate	
	011	HV1	M	bias	
Temporary	012				
	013			Dmax level collection	36 mode adjustment
	014			γ correction level adjustment	36 mode adjustment
	015		M	Process adjustment 01: The following data in both the main body and KRDS is cleared. B1 (copy count for each size) , F0 (Number of sheets passed through the ADF) F1 (counter for each mode), J0 (JAM count) , E0 (F count) E2 (E count) , E3 (adjustment error count) 98: KRDS initialization	
	016				
	017				
	018			Dmax level adjustment + γ correction level	36 mode adjustment
	019				
Paper feed	020		M	1st paper feed solenoid 1: Main body upper 2: Main body lower 3: LCT right (1000) 4: LCT left (1500) 5: By-pass feed 6: Upper pre-feed SD 7: Lower pre-feed SD	
	021		M	Paper feed motor 1: — 2: LCT (by-pass feed speed) 3: LCT (main body paper feed speed) 4: LT-352	
	022		M	1st paper feed clutch 1: Main body upper 2: Main body lower 3: LCT right (1000) 4: LCT left (1500) 5: By-pass feed 6: Main body upper middle 7: Main body lower middle 8: LCT middle 9: LT-352	
	023		M	1: Reversal gate SD 2: Paper exit gate SD	
	024	MC11		Assist drive MC	
	025	MC3		2nd paper feed MC	
	026	M201		Reversal paper exit motor	
	027	M202		Paper exit motor	
	028	SD5		Conveyance SD	
	029	SD4		Separation claw SD	

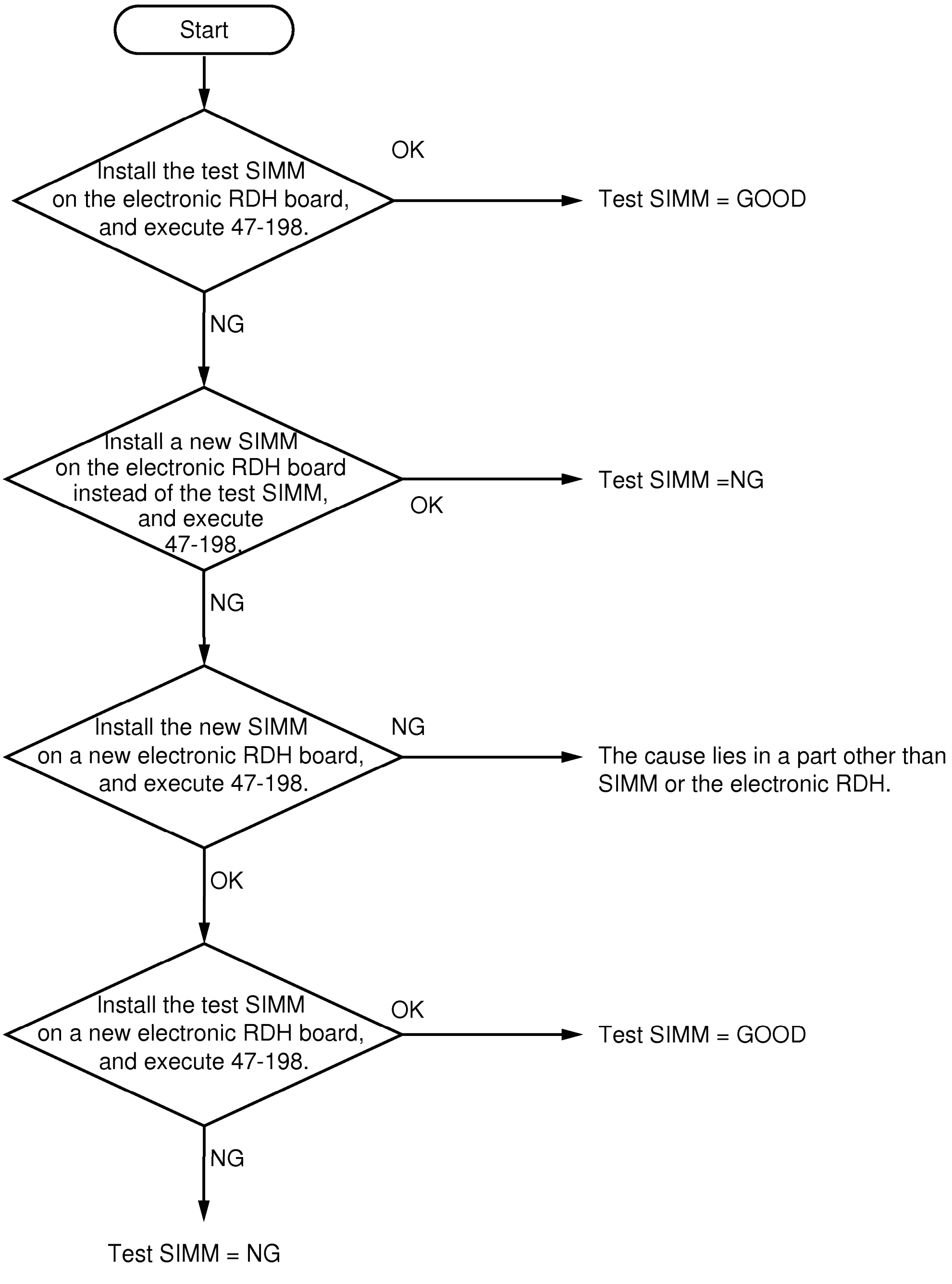
Classification	Code	Symbol	Multi mode	Name	Impossible to install/ change to write in the market
Optics	030				
	031	M12		Optics drive motor	
	032	M5	M	Polygon motor 0: 400dpi 1:600dpi rotation	
	033				
	034			Shading correction + AGC + AOC	
	035				
	036				
	037				
	038				
	039				
Main body	040	M1	M	Main motor	×
	041	M4		Drum motor	
	042 △1		M	Fan motor 1: Main body cooling fan (ON: H rotation / OFF: L rotation) 2: Optics cooling fan 3: Conveyance suction fan 4: Polygon cooling fan (ON: H rotation / OFF: L rotation) 5: E-RDH cooling fan (ON: H rotation / OFF: L rotation) 6: ADU cooling fan 7: Developing suction fan 8: Paper exit fan 2 9: Paper exit fan 1 10: DCPS cooling fan (ON: H rotation / OFF: L rotation)	
	043	C(T)		Total counter	
	044				
	045	L2,L3,L4	M	Fixing heater lamp 1: Main heater 2: Main heater + sub heater 3: Main heater + Sup heater + Under heater	
	046	M7		Charge cleaning motor	
	047	M8		Transfer/Separation cleaning motor	
	048			Operation unit (all are lit)	
	049				
Intrinsic function	050	M3	M	Setting the rotation number of the developing drive motor in 400 dpi	×
	051	PCL		PCL	
	052	TSL		TSL	
	053	M35		Agitator screw motor	
	054	M10		Toner automatic replenishing (L detecting)	
	055			Message test	
	056	M7		Compulsory returning the charge cleaning motor	
	057	M8		Compulsory returning the transfer/separation cleaning motor	
RADF	060		M	Drive (DF312) 0: Original feed motor (forward) 1: Original feed motor (reverse) 2: Original conveyance motor (forward) 3: Original conveyance motor (reverse) 4: Original pickup CL 5: Original feed clutch 6: Flapper SD 7: Original pressure SD	

Classification	Code	Symbol	Multi mode	Name	Impossible to install/ change to write in the market
FS-106 △1	075		M	FS106 I/O check	
		M1		1: 1st conveyance motor	
		M2		2: Roller shift motor (HP search)	
		M2		3: Roller shift motor (shift position transfer)	
		M2		4: Roller shift motor (1 rotation)	
		M3		5: Tray up-down motor	
		M3		6: Tray up-down motor (Move to lower limit)	
		M3		7: Tray up-down motor (Up-down operation with only few sheets at staple mode)	
		M5		8: Alignment plate motor	
		M7		9: Paper exit roller motor (staple mode HP search)	
		M7		10: Paper exit roller motor (reverse rotation)	
		M8		11: Paper exit opening motor HP search (closing angle)	
		M8		12: Paper exit opening motor open slot transfer (opening angle)	
		M9		14: Stapler R motor (staple operation)	
		M10		16: Stapler F motor (staple operation)	
		M11		17: Stapler movement motor HP search (Move to double staple position)	
		M11		18: Stapler movement motor (Move to single staple position for A4)	
		M14		19: Stacker entrance motor	
		SD1		28: Gate solenoid	
		SD2		29: Sub-tray paper exit solenoid	
		SD4		31: Paper exit opening solenoid	
		SD5		32: By-pass solenoid	
		M5		33: Alignment plate motor Open (A4 position) enable only from HP position	
		M5		34: Alignment plate motor Close (A4 position) enable only from HP position	
		M5		35: Alignment plate motor rocking (enable only from Open position)	
		M4		41: 2nd conveyance motor (staple mode HP search)	
		M4		42: 2nd conveyance motor (paper exit operation)	
		M12		43: Stapler rotating motor (vertical movement)	
		M12		44: Stapler rotating motor (Slant movement)	
		SD3		45: Decompression solenoid	
				99: "No paper" running mode	
ADU	080	M151		ADU paper feed motor	
	084		M	ADU load 1: CW clutch 2: CCW clutch 3: Conveyance clutch	
Adjustment process and others	090			PM counter reset (clear)	
	091			Drum counter reset (clear)	
	092			Process initial setting (impossible to be used in the field)	×
	093			Field initial setting (data return in delivery from process)	
	094			Adjustment mode list display mode	
	095			L-detecting reference value automatic adjustment (Developing counter reset)	36 mode adjustment
	096			Process delivery completing setting (Cannot be used in the field.)	×
	097		M	Lighting setting 1: Mode 1 2: Mode 2	
Temporary	113			Dmax level correction (600dpi)	
	114			Gamma correction level (600dpi)	
Special mode	160				
	180				
	190				
	191				
	192				
	193				
	197			Electronic RDH SIMM capacity check	
	198			Electrical RDH SIMM check	
	199				

Classification	Code	Symbol	Multi mode	Name	Impossible to install/ change to write in the market
FS-108BM △1	075	M1	M	1: FNS conveyance motor	
		M2		2: Roller shift motor (HP search)	
		M2		3: Roller shift motor (shift position transfer)	
		M2		4: Roller shift motor (1 rotation)	
		M3		5: Tray up-down motor (HP search)	
		M3		6: Tray up-down motor (Move to lower limit)	
		M3		7: Tray up-down motor (Up-down operation with only few sheets at staple mode)	
		M5		8: Alignment plate motor/upper (HP search)	
		M7		9: Paper exit roller motor (staple mode HP search)	
		M7		10: Paper exit roller motor (reverse rotation)	
		M8		11: Paper exit opening motor HP search	
		M8		12: Paper exit opening motor open slot transfer	
		M21/M22		13: Stapler unit (R) (initial)	
		M21/M22		14: Stapler unit (R) (staple operation)	
		M23/M24		15: Stapler unit (F) (initial)	
		M23/M24		16: Stapler unit (F) (staple operation)	
		M11		17: Stapler movement motor HP search (Move to double staple position)	
		M11		18: Stapler movement motor (Move to single staple position for A4)	
		M13		19: Stacker entrance motor	
		M14		20: Stapling and folding stopper motor (HP search)	
		M15		21: Alignment plate motor/lower (HP search)	
		M18		22: Folding stopper motor (HP search)	
		M19		23: Folding knife motor (HP search)	
		M20		24: Folding conveyance motor	
		M17		25: Stapling and folding stopper release motor (HP search)	
		M17		26: Stapling and folding stopper release motor (set)	
		M17		27: Stapling and folding stopper release motor (release)	
		SD1		28: Gate solenoid	
		SD2		29: Sub-tray paper exit solenoid	
		SD4		31: Paper exit opening solenoid	
		SD5		32: By-pass solenoid	
		M5		33: Alignment plate motor/upper Open (A4 position) enable only from HP position	
		M5		34: Alignment plate motor/upper Close (A4 position) enable only from HP position	
		M5		35: Alignment plate motor/upper rocking (enable only from Open position)	
		M15		36: Alignment plate motor/lower Open (A4 position) enable only from HP position	
		M15		37: Alignment plate motor/lower Close (A4 position) enable only from HP position	
		M15		38: Alignment plate motor/lower rocking (enable only from Open position)	
		M14		39: Stapling and folding stopper motor (A4 R position transfer)	
		M18		40: Folding stopper motor (A4 R position transfer)	
		MC201		64: Paper feed clutch	
		M201		65: Sheet tray motor HP search (Move to lower limit)	
		M201		66: Sheet tray motor (Move to upper limit)	
		SD201		67: Paper feed solenoid	

1. Electronic RDH SIMM Check

Use the following procedure to judge whether or not SIMM is satisfactory.


Start
Install the test SIMM on the electronic RDH board, and execute 47-198.
OK
Test SIMM = GOOD
NG
Install a new SIMM on the electronic RDH board instead of the test SIMM, and execute 47-198.
OK
Test SIMM =NG
NG
Install the new SIMM on a new electronic RDH board, and execute 47-198.
NG
The cause lies in a part other than SIMM or the electronic RDH.
OK
Install the test SIMM on a new electronic RDH board, and execute 47-198.
OK
Test SIMM = GOOD
NG
Test SIMM = NG

OTHER ADJUSTMENT

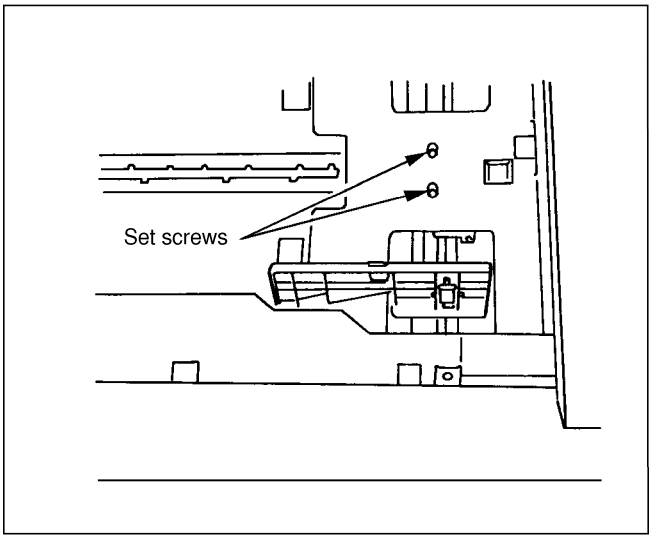
[1] Adjustment for Centering error

Note: These centering adjustments are to be executed only when centering adjustments in the 36 mode cannot be performed within the standards. Also, these adjustments must be executed along with the centering adjustment for the 36 mode.

1. Tools used

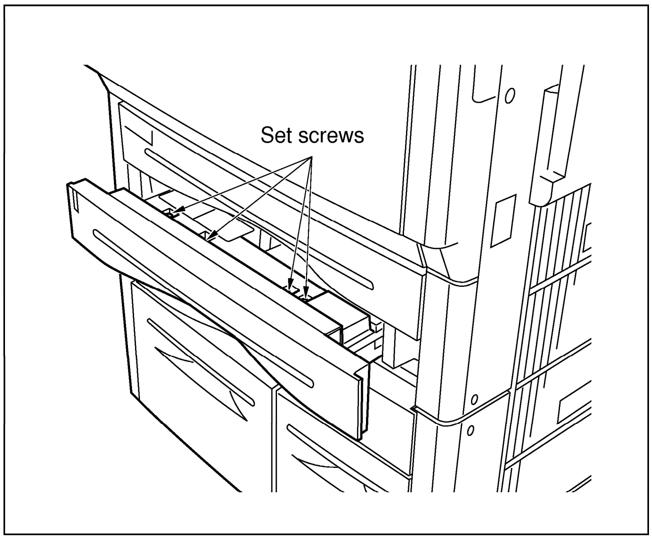
- Driver (plus)

2. Centering adjustment of the upper tray



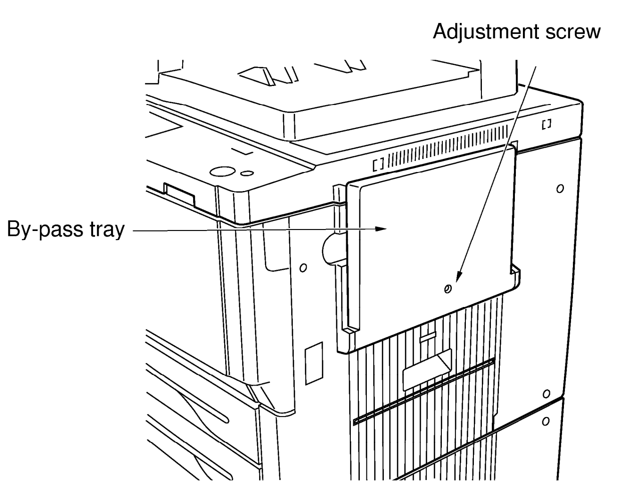
Step	Operation
1	Withdraw the upper tray.
2	Loosen the two set screws on the center.
3	Move a side plate and adjust for centering error.
4	Tighten the two set screws securely, and perform the centering adjustment in the 36 mode.
5	Repeat steps 1 to 4 until the centering error within the standard value.

3. Centering adjustment of the lower tray



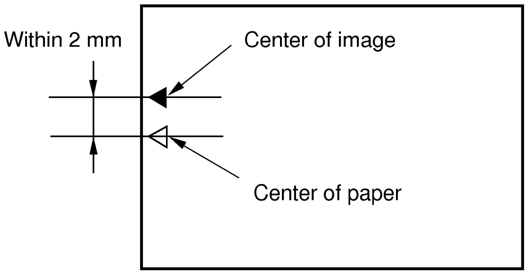
Step	Operation
1	Withdraw the lower tray.
2	Loosen the four set screws on the front cover of the tray.
3	Move the cover forward and backward, and adjust for centering error.
4	Tighten the four set screws securely, and perform the centering adjustment in the 36 mode.
5	Repeat steps 1 to 4 until the centering error within the standard value.

4. Centering adjustment of the by-pass tray

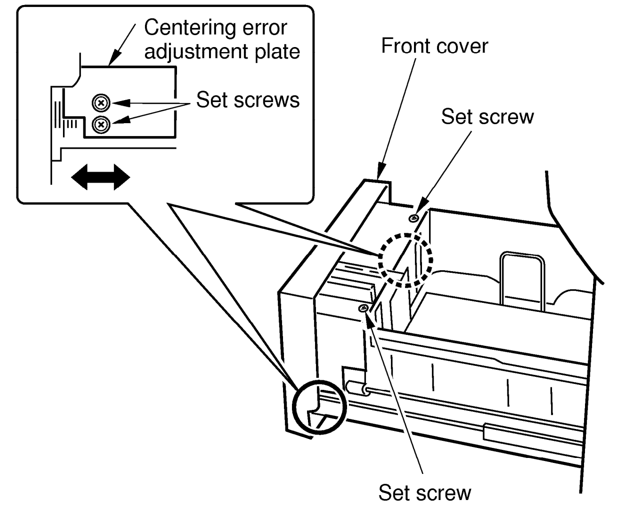

Adjustment screw
By-pass tray

Step	Operation
1	Loosen the adjustment screw and open the by-pass tray.
2	Move the guide forward and backward, and adjust for centering error.
3	Tighten the adjustment screw securely, and perform the centering adjustment in the 36 mode.
4	Repeat steps 1 to 3 until the centering error within the standard value.

Standard value: Mis-centering .... Within 2 mm

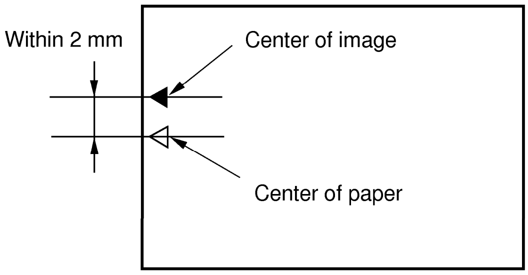

Within 2 mm
Center of image
Center of paper

5. Centering adjustment of the LCT tray


Centering error adjustment plate
Set screws
Front cover
Set screw
Set screw

Step	Operation
1	Withdraw a LCT tray.
2	Loosen the set screws (two each) on the centering error adjustment plate of the both sides tray and loosen the two set screws on the front cover of the tray.
3	Move the centering error adjustment plate forward and backward, and adjust for centering error.
4	Tighten the four set screws of the centering adjustment plates and the two set screws of the front cover securely, and perform the centering adjustment in the 36 mode.
5	Repeat steps 1 to 4 until the centering error within the standard value.

Standard value: Mis-centering .... Within 2 mm


Within 2 mm
Center of image
Center of paper

## [2] 4.00X Leading Edge Timing and Black Line Check

This adjustment is not normally necessary but is performed when faulty timing or black lines appear at a magnification of 4.00X (400%).

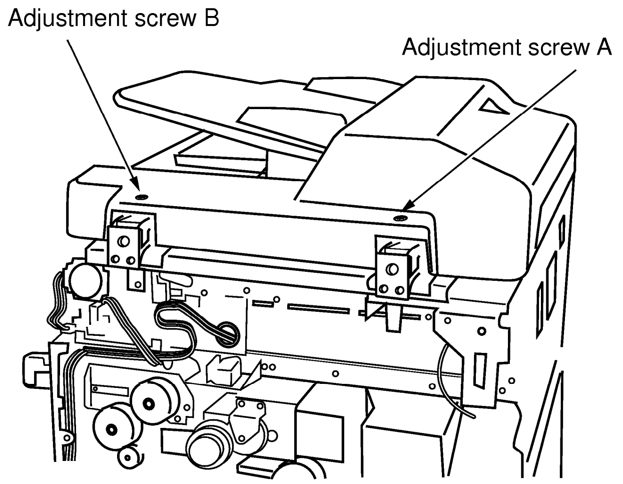
Step	Operation
1	Load paper into the tray 1.
2	Place a copy chart on the platen glass and set the magnification to 4.00X (400%).
3	Press the Start Print button to make a copy, and check the leading edge timing and check for black lines. Standard value: ± 3mm or less
4	If outside the standard value, adjust the position of PS4 (paper feed re-start) on the back panel of the optical unit.
5	Repeat steps 3 to 5 until within the standard value.
6	After this adjustment is completed, adjust the leading edge timing and amount of leading edge erasure at 1.00X.

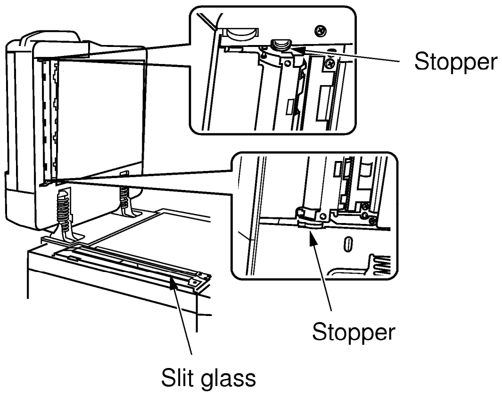
[3] RADF installing position adjustment

1. Tools used

- Driver (plus)

2. Adjusting method



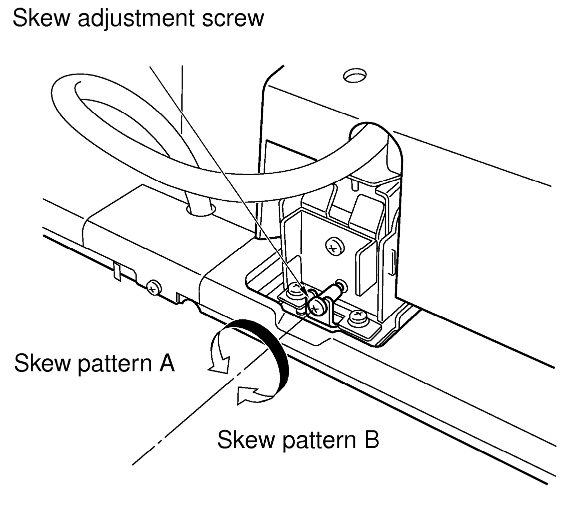
Step	Operation
1	Close the RADF.
2	Check the gap between the RADF stopper and the slit glass from the paper exit side.
3	Turn the adjustment screw A and B and adjust the gap so that both stoppers contact the slit glass. 

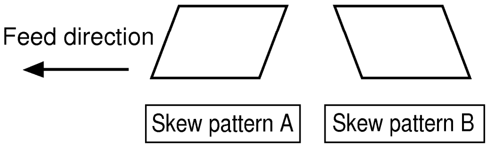
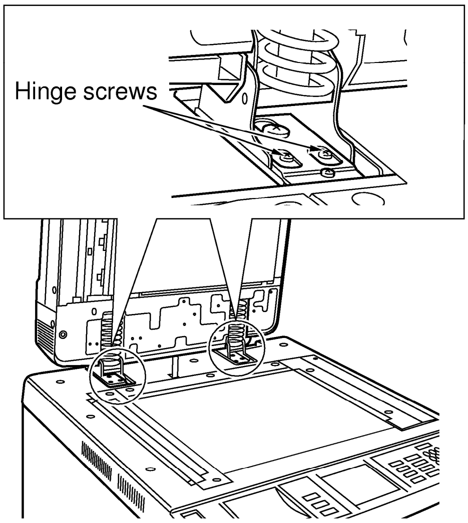
[4] RADF skew adjustment

1. Tools used

- Driver (plus)

2. Adjusting method

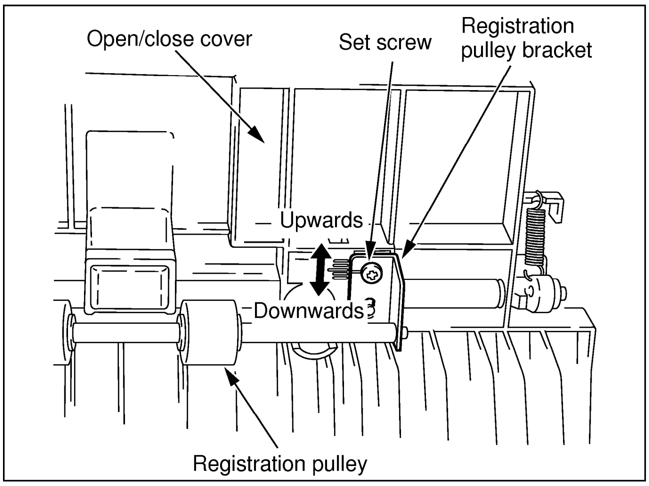

Skew adjustment screw
Skew pattern A
Skew pattern B

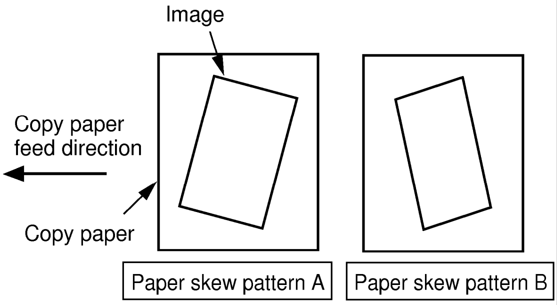
Step	Operation
1	Load A3 paper into the tray 1.
2	Set the adjustment chart on the RADF, make a copy, and check the skew. **Standard value: 0.25% max**  Feed direction Skew pattern A Skew pattern B Make the following adjustments if the skew is beyond the standard.
3	Open the RADF and loosen the four hinge set screws (two on both the left and right).  Hinge screws
4	Close the RADF, turn the skew adjustment screws and adjust the skew. For Skew pattern A: Turn the skew adjustment screw in the counterclockwise direction. For Skew pattern B: Turn the skew adjustment screw in the clockwise direction.
5	Make a test copy and check the skew.
6	Tighten the four hinge set screws (two on both the left and right).
7	Make adjustments by repeating steps 3 to 6.

[5] RADF paper skew adjustment

1. Face side (side 1) of original paper skew adjustment

Note: Always perform this adjustment after completing the RADF skew adjustment. (Refer to previous page.)

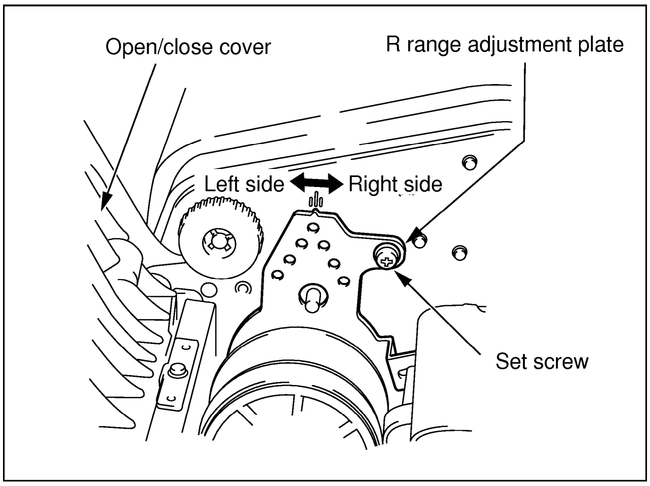

Open/close cover
Set screw
Registration pulley bracket
Upwards
Downwards
Registration pulley

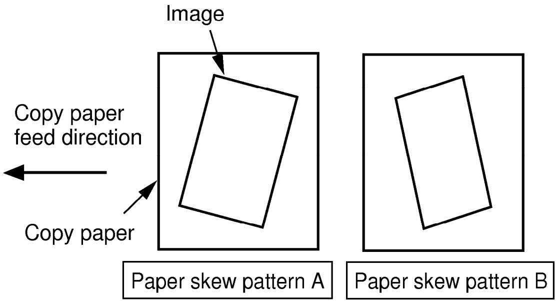
Step	Operation procedure
1	Make a copy in the single sided → single sided copy mode then check the skew of the original. (Either pattern A or B)  Image Copy paper feed direction Copy paper Paper skew pattern A Paper skew pattern B
2	Open the open/close cover.
3	Loosen the set screw and release the registration pulley bracket.
4	Move the registration pulley bracket one calibration in the direction below according to the paper skew pattern. For skew in pattern A: Move the registration pulley bracket downwards (direction down with original feed flow). For skew in pattern B: Move the registration pulley bracket upwards (direction up towards original feed flow). **Note:** Make sure that the registration pulley shaft does not touch the open/close cover spring holder unit.
5	Repeat steps 2 to 4 until the original skew is within specified range (0.5% or less).

Specified range: Paper skew ± 0.5 % or less

(Paper skew in the paper feed direction)

2. Back side (side 2) of original paper skew adjustment


Open/close cover
R range adjustment plate
Left side
Right side
Set screw

Step	Operation procedure
1	Make a copy in the double sided → single sided copy mode then check the skew of the original. (Either pattern A or B)  Image Copy paper feed direction Copy paper Paper skew pattern A Paper skew pattern B
2	Open the open/close cover.
3	Loosen the set screw and release the R range adjustment plate.
4	Move the R range adjustment plate one calibration in the direction below according to the paper skew pattern. For skew in pattern A: Move the R range adjustment plate to the left side. For skew in pattern B: Move the R range adjustment plate to the right side.
5	Repeat steps 2 to 4 until the original skew is within specified range (0.5% or less).

Specified range: Paper skew ± 0.5% or less

(Paper skew in the paper feed direction)

5

SERVICE

Main Precautions for Maintenance

1. Points to be confirmed before maintenance
   Before starting maintenance, ask a user and collect information about troubles occurred on the machine before the maintenance and the conditions of the machine to grasp key points for the maintenance.

2. Copy sample
   Be sure to make copy samples at the start and the end of maintenance for checking images.

3. Drum
   1) Never expose the drum to the sunlight. Be also careful not to expose a drum to indoor light as far as possible.
      When a drum unit or a drum is out of the machine, never fail to cover it with a drum cover.
   2) When replacing a drum or a cleaning blade, refer to Item of mounting/dismounting of a cleaning blade for doing a replacement work.

4. After replacing a drum, be sure to reset a drum counter before image adjustment. After replacing developer, L detection adjustment must be conducted also.

5. When maintenance is completed, be sure to reset the PM counter. Incidentally, a development counter is reset automatically in the course of L detection adjustment.

6. When replacing a toner cartridge, wait until the toner supply LED on the operation panel flashes before the replacement.

⚠ **Caution: Turn the main switch off and pull out the power plug without fail before the work of maintenance.**

SERVICE SCHEDULE

[1] Service Schedule

Classification	Number of copies (unit: 10,000) / Service item (cycles)	Guarantee period (5 years or 5,000,000 copies)																			Service times
		15	30	45	60	75	90	105	120	135	150		390	405	420	435	450	465	480	495	
Main body	Maintenance (Every 150,000 copies)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	33 times
	Periodic check (I) (Every 300,000 copies)		●		●		●		●		●	●	●		●		●		●		16 times
	Periodic check (II) (Every 450,000 copies)			●			●			●		●		●			●			●	11 times
	Periodic check (III) (Every 900,000 copies)						●					●					●				5 times
	Periodic check (IV) (Every 1,800,000 copies)											●									2 times
	Periodic check (V) (Every 3,000,000 copies)											●									1 time
	Periodic check (VI) (Every 3,900,000 copies)												●								1 time
RADF (DF-312)	Maintenance (Every 150,000 copies)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	33 times
	Periodic check (I) (Every 300,000 copies)		●		●		●		●		●	●	●		●		●		●		16 times
	Periodic check (II) (Every 1,500,000 copies)										●	●					●				3 times
LCT (LT-352)	Maintenance (Every 150,000 copies)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	33 times
	Periodic check (I) (Every 450,000 copies)			●			●			●		●		●			●			●	11 times
	Periodic check (II) (Every 900,000 copies)						●					●					●				5 times
FNS (FS-106)	Maintenance (Every 150,000 copies)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	33 times
	Periodic check (I) (Every 900,000 copies)						●					●					●				5 times
	Periodic check (II) (Every 2,550,000 copies)											●									1 time
FNS (FS-108BM)	Maintenance (Every 150,000 copies)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	33 times
	Periodic check (I) (Every 900,000 copies)						●					●					●				5 times
	Periodic check (II) (Every 2,550,000 copies)											●									1 time
△2 PI (PI-108)	Maintenance (Every 150,000 copies)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	33 times
	Periodic check (I) (Every 450,000 copies)			●			●			●		●		●			●			●	11 times
	Periodic check (II) (Every 900,000 copies)						●					●					●				5 times

[2] Maintenance Items

1. Main body (Every 150,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
1	Preparation	(1) Image check			●				
		(2) Kit contents check			●				
		(3) 36 - 40 (Check of adjustment value, Dmax and γ correction error)			●				
2	Fixing unit	(1) Fixing unit removing							
		(2) Jam clearance door removing							
		(3) Upper cover removing							
3	Drum unit	(1) Drum unit removing							
		(2) Drum unit check			●				
		(3) Charging corona unit removing							
		(4) Charging control plate replacement 25SA2508*	1				●		
		(5) Charging wire replacement (Removing & installing) 55FA2501*	1				●		
		(6) Charging corona unit (Back plate and its around, and PCL)		●					Drum cleaner & Waste rag Blower brush
		(7) Charging wire cleaning block/B (Upper) 25SA-254*	1				●		
		(8) Charging cleaning block/A (Lower) 25SA-253*	1				●		
		(9) Developing unit removing							
		(10) Cleaning blade removing							
		(11) Drum removing							
		(12) Drum cartridge/Developing unit bottom plate/Toner control sensor/Separating claw		●					Blower brush & Cleaning pad * Drum cleaner (used only when cleaning the toner control sensor)
		(13) Recycle pipe check			●				
		(14) Toner collecting screw/A		●					
		(15) Toner guide roller replacement 55TA-204*	1				●		Blower brush & Cleaning pad
		(16) Cleaner idler gear replacement 55FA7707*	1				●		
		(17) Cleaning blade 25SA-206*	1				●		
		(18) Cleaning blade and upper plate installing							

MC-Service

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
4	Developing unit	(1) Developing bias intercept		●					Blower brush & Cleaning pad
		(2) Developer	1				●		
		(3) Developing unit		●					Blower brush & Cleaning pad
		(4) Developing unit installation							
5	Transfer/ Separation corona unit (Note 1)	(1) Transfer/Separation corona unit (Front & rear block/Guide rail/Separating bridge/Enter guide plate/ Spark arrestor sheet/Back plate) removing & installing		●					Blower brush & Cleaning pad /Cotton swab/Drum cleaner
		(2) Discharging wire 25SA2612*	3				●		
		(3) Transfer cleaning block/upper assembly 25SA-263*	1				●		
		(4) Separation cleaning block/upper assembly 25SA-264*	1				●		
6	Machine inside	(1) Upper part of conveyance unit		●					Drum cleaner & Cleaning pad
		(2) Conveyance belt		●					Drum cleaner & Cleaning pad
7	2nd paper feed unit	(1) Paper dust removing brush (Removing)		●					Cleaning pad & Blower brush
		(2) 2nd paper feed roller		●					Drum cleaner & Cleaning pad
		(3) Paper dust removing brush installing							
		(4) Transfer synchronization lamp (TSL)		●					Blower brush
8	Drum unit	(1) Drum unit installing							
9	Drive unit & Filter	(1) Back plate removing							
		(2) Developing suction filter check			●				
		(3) Filter K 55FA7301*	1				●		
		(4) Timing belt check			●				
		(5) Drive gear oiling				●			Plus guard No. 2
		(6) Back plate installing							
10	Reversal paper exit & ADU	(1) Left side external/reversal paper exit unit removing							
		(2) Reversal paper exit rollers (Upper/Middle/Lower)		●					Drum cleaner & Cleaning pad
		(3) Timing belt check			●				
		(4) Sensors cleaning Reversal paper exit section (4 position) ADU horizontal conveyance section (6 position)		●					Blower brush
	△2	(5) Gears oiling (drive / introduction section)				●			Plus guard No. 2
		(6) Reversal paper exit unit / Left side panel installing							
11	Paper feed unit (Main body/LCT)	**Paper feed unit**							
		(1) Upper right side plate and unit removing							
		(2) Main body bottom plate and around paper feed unit		●					Blower brush & Cleaning pad

(Note 1)

- Do not remove the entrance guide plate and rollers of transfer separation corona when cleaning them.
- Basically, use Blower brush to clean roller parts. Use cleaning pad and drum cleaner only when the foreign matters or dust on the roller cannot be removed. In that case, do not press the roller hard. Wipe it gently.
- As to the cleaning of spark arrestor sheet, clean from the reverse side of the guide plate, using cotton swab. Make sure to wipe gently, try not to press hard. It is possible to use drum cleaner when it is soiled heavily.

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
11	Paper feed △2 unit (Main body/LCT)	(3) Sensors(5 positions of upper tray)		●					Blower brush
		(4) Gears (upper tray) oiling				●			Plus guard No. 2
		(5) Conveyance/driven roller (Upper tray)		●					Drum cleaner & Cleaning pad
		(6) Swing/feed roller (3 positions including by-pass tray)		●					Drum cleaner & Cleaning pad
		(7) Double feed prevention roller (by-pass tray) (Removing & Cleaning & Installing)		●					Drum cleaner & Cleaning pad
		(8) Double feed prevention roller (1st tray of main body) (Cassette guide rail removing/ Double feed prevention roller cleaning)		●					Drum cleaner & Cleaning pad
		(9) Cassette guide rail installing							
		(10) Double feed prevention roller (2nd tray of main body) (Cassette guide rail removing/ Double feed prevention roller cleaning)		●					Drum cleaner & Cleaning pad
		(11) Cassette guide rail installing							
		(12) Unit (cassette) and upper right side plate installing							
		1000 LCT paper feed unit							
		(13) Lower right plate and unit removing (LCT)							
		(14) Main body bottom plate & around paper feed unit		●					Blower brush & Cleaning pad
	△2	(15) Sensors(4 positions of lower tray)		●					Blower brush
		(16) Gears (lower)				●			Plus guard No. 2
		(17) Conveyance Driven roller (Lower)		●					Drum cleaner & Cleaning pad
		(18) Swing/feed roller (1 position)		●					Drum cleaner & Cleaning pad
		(19) Double feed prevention roller (Cleaning after opening open/ close cover)		●					Drum cleaner & Cleaning pad
		(20) Unit (LCT) and lower right side plate installing							
		LCT horizontal conveyance unit							
		(21) Horizontal conveyance unit removing							
		(22) Sensors		●					Blower brush

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
11	Paper feed unit (Main body/LCT)	(23) Gears				●			Plus guard No. 2
		(24) Conveyance roller (Upper and Lower)		●					Drum cleaner & Cleaning pad
		(25) Swing/feed roller		●					Drum cleaner & Cleaning pad
		(26) Double feed prevention roller		●					Drum cleaner & Cleaning pad
		(27) Horizontal conveyance unit installing							
12	Reading section	(1) Platen glass/Slit glass		●					Drum cleaner & Cleaning pad
		(2) Exposure lamp		●					Blower brush
		(3) Reflection mirror		●					Cleaning pad
		(4) Lens		●					Blower brush & Cleaning pad
		(5) 1st, 2nd and 3rd mirror		●					Blower brush & Cleaning pad
		(6) White reference cover glass		●					Drum cleaner & Cleaning pad
		(7) APS sensor		●					Blower brush
		(8) Photo interrupter		●					Blower brush
		(9) Supply cord / Timing belt			●				
		(10) Wire tension			●				
		(11) Optics guide rail		●					Cleaning pad
13	Writing section	(1) Dust proof glass (Outside)		●					Blower brush & Cleaning pad
14	Fixing unit	(1) Oil pad removing							
		(2) Impregnated roller removing							
		(3) Fixing cleaning roller removing							
		(4) Fixing roller/Upper		●					Roller cleaner & Cleaning pad
		(5) Fixing roller/Lower (Paper exit guide plate removing)		●					Roller cleaner & Cleaning pad
		(6) Fixing claw/Upper & Lower		●					Drum cleaner & Cleaning pad
		(7) Paper exit roller		●					Drum cleaner & Cleaning pad
	△2	(8) Exit paper conveyance roller (Right)/Guide rib		●					Drum cleaner & Cleaning pad
	△2	(9) Decurler belt		●					Drum cleaner & Cleaning pad
		(10) Fixing entrance and exit guide plate		●					Drum cleaner & Cleaning pad
		(11) Fixing temperature sensor/2		●					Blower brush & Paper
		(12) Fixing gear oiling				●			Molytherm grease
		(13) Fixing cleaning roller (+ installing) 25SA5320*					●		
		(14) Oil impregnated roller (+ installing) 55FA5313*	1				●		
		(15) Oil pad (+ installing) 55FA-535*	1				●		
		(16) Insulating sleeve oiling	1			●			Tri-flow
		(17) Paper exit guide plate installing							
		(18) Fixing upper cover installing							
		(19) Jam clearance door installing							
		(20) Fixing unit installing							

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
15	Final check	(1) Toner supply			●			(●)	
		(2) L detection (with new developer) 47 - 95			●				
		(3) W.U.T measure and check			●				
		(4) Image check after changing consumables			●				
		(5) Copy sample check			●				
		(6) PM counter reset 47 - 90			●				
		(7) Drum counter reset 47 - 91			●				Drum counter reset at 2PM (300kc)
		(8) Leakage breaker reset			●				
		(9) Machine surroundings, Externals		●	●				Drum cleaner & Cleaning pad

2. RADF [DF-312] (Every 150,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
1	Paper feed section	(1) Paper feed roller		●					Drum cleaner & Cleaning pad
		(2) Separation roller		●					Drum cleaner & Cleaning pad
		(3) Double feed prevention pad		●					Drum cleaner & Cleaning pad
		(4) Paper dust removing pad		●					Blower brush
2	Conveyance section	(1) Regist sensor		●					Cleaning pad & Blower brush
		(2) Regist sensor mirror		●					Cleaning pad & Blower brush
		(3) Original conveyance sensor		●					Cleaning pad & Blower brush
		(4) Original conveyance sensor reflection part		●					Cleaning pad & Blower brush
		(5) Original reversing sensor		●					Cleaning pad & Blower brush
		(6) Original reversing sensor mirror		●					Cleaning pad & Blower brush

3. LCT [LT-352] (Every 150,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Clean-ing	Check	Lubrica-tion	Replace-ment	Supply	
1	Preparation	(1) Paper feeding check			●				
2	Inside of machine	(1) Sensors		●					Blower brush
		(2) Gears				●			Plus guard No.2
		(3) Conveyance roller/Driven roller		●					Dram cleaner / Cleaning Pad
		(4) Swing roller		●					Dram cleaner / Cleaning Pad
		(5) Feed roller		●					Dram cleaner / Cleaning Pad
		(6) Double feed prevention roller		●					Dram cleaner / Cleaning Pad
3	Final check	(1) Paper feeding check			●				
		(2) Externals		●	●				Dram cleaner / Cleaning Pad

△2 4. FNS [FS-106] (Every 150,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
1	Preparation	(1) Paper through check			●				
2	Conveyance unit	(1) Conveyance roller		●					Drum cleaner & Cleaning pad
		(2) Swing roller 12QR5065*	1				●		
3	Paper exit unit	(1) Paper exit roller/A 122H4825*	10				●		
4	Drive unit	(1) Main drive unit *1			●	(●)			
		(2) Tray up and down unit *1			●	(●)			
		(3) Shift drive unit *1			●	(●)			
		(4) Paper exit drive unit *1			●	(●)			
		(5) Staple unit *1			●	(●)			
5	Stapler unit	(1) Staple cartridge *2 12QRK001*	2		●		(●)		
6	Final check	(1) Paper through check			●				
		(2) Exterior		●	●				Drum cleaner & Cleaning pad

*1: If abnormal sound is heard due to insufficient oil, apply oil (Plus guard No.2).
*2: This work confirms if the staple is exchanged by CE. (5,000 staples/1 cartridge)

△2 5. FNS [FS-108BM] (Every 150,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
1	Preparation	(1) Paper through check			●				
2	Conveyance unit	(1) Conveyance roller		●					Drum cleaner & Cleaning pad
		(2) roller 122H4525*	1				●		
3	Paper exit unit	(1) Paper exit roller/A 122H4825*	10				●		
4	Drive unit	(1) Main drive unit *1			●	(●)			
		(2) Tray up and down unit *1			●	(●)			
		(3) Shift drive unit *1			●	(●)			
		(4) Paper exit drive unit *1			●	(●)			
		(5) Staple unit *1			●	(●)			
		(6) Fold unit *1			●	(●)			
5	Folding section	(1) Flat belt			●				
		(2) Folding roller		●					Drum cleaner & Cleaning pad
		(3) Pressurized roller		●					Drum cleaner & Cleaning pad
6	Stapler unit	(1) Staple cartridge 12QRK001* *2	2		●		(●)		
7	Final check	(1) Paper through and staple clinching condition check			●				
		(2) Exterior		●	●				Drum cleaner & Cleaning pad

*1: If abnormal sound is heard due to insufficient oil, apply oil (Plus guard No.2).
*2: This work confirms if the staple is exchanged by CE. (5,000 staples/1 cartridge)

△2 6. PI [PI-108] (Every 150,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
1	Conveyance section	(1) Conveyance roller		●					Drum cleaner & Cleaning pad
2	Paper feed section	(1) Paper feed roller *1		●		(●)			Drum cleaner & Cleaning pad
		(2) Feed roller *1		●		(●)			Cleaning pad & Blower brush
		(3) Double feed prevention roller *1		●		(●)			Cleaning pad & Blower brush
3	Final check	(1) Paper through check			●				
		(2) Exterior		●	●				Cleaning pad & Blower brush

*1: If abnormal sound is heard due to insufficient oil, apply oil (Plus guard No.2).

[3] Periodic Check (Main Body)

1. Periodic check (I) (Every 300,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
1	Fixing unit	(1) Fixing roller/Upper 55FA5319*	1				●		
		(2) Fixing claw/Upper 25SA5315*	6				●		
		(3) Insulating sleeve / Upper 45405339*	2			●	●		Apply Tri - flow at replacement
2	Drum unit	(1) Separating claw 55FA-203*	3				●		
		(2) Drum	1				●		
3	Drive section (Filter parts)	(1) Developing suction filter 54007307*	1				●		
4	Reading section	(1) Dust proof filter 55TA-694*	1				●		

2. Periodic check (II) (Every 450,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
1	Paper feed unit	(1) Double feed prevention rubber 25SA4096*	8				●		Actual copy count: 100k copies
		(2) Paper supply rubber (by-pass) 54004056*	1				●		Actual copy count: 70k copies
		(3) Double feed prevention rubber (by-pass) 55FA4234*	1				●		Actual copy count: 70k copies
2	Fixing unit	(1) Ball bearing 45407504*	2				●		
		(2) Fixing roller/Lower 55FA5320*	1				●		
		(3) Fixing claw/Lower 25BA5333*	3				●		
		(4) Fixing rolling bearing 25BA7603*	2				●		
3	2nd paper feed unit	(1) Registration roller/lower 55TA4105*	1				●		
		(2) Registration roller/upper 55FA4106*	1				●		

3. Periodic check (III) (Every 900,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
1	Paper feed unit	(1) Feeding rubber/A 25AA4001*	4				●		Actual copy count: 800K copies
		(2) Paper feeding rubber (by-pass) 55FA4233*	1				●		Actual copy count: 140K copies
2	Fixing unit △2	(1) Fixing lamp/1 55TF8303*	1				●		
		(2) Fixing lamp/2 55TF8304*	1				●		
		(3) Fixing lamp/3 55FF8305*	1				●		
		(4) Paper exit drive gear/1 55TA7704*	1				●		
3	Drive unit	(1) Fixing input gear 25BA7726*	1				●		
4	Reversal paper exit unit	(1) Paper exit drive pulley/1 55TA7652*	1				●		
		(2) Paper exit drive gear/1 55TA7704*	2				●		

4. Periodic check (IV) (Every 1,800,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
1	Drum unit	(1) Solenoid press-in assembly 25SA-217*	1				●		
2	Paper feed unit (main unit/LCT)	(1) Middle conveyance clutch 55FA8204*	2				●		
3	2nd paper feed unit	(1) 2nd paper feed clutch 55TA8201*	1				●		
4	Transfer/ Separation corona unit	(1) Transfer/Separation corona unit ass'y 55TA-260*	1				●		
5	Drive unit	(1) Assist drive clutch 55FA8221*	1				●		

5. Periodic check (V) (Every 3,000,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
1	Drum unit	(1) Toner control board unit 25SA-910*	1				●		
2	Paper feed unit	(1) Paper feed regulation gear/Upper 25SA7726*	1				●		
3	Charging corona unit	(1) Charging corona unit (PCL included) 55FA-250*	1				●		
4	2nd paper feed unit	(1) TSL ass'y 5400-913*	1				●		
5	Developing unit	(1) Developing unit 55FA-300*	1				●		
6	Fixing unit	(1) Temperature sensor 2 25SA8844*	1				●		
7	ADU	(1) Conveyance pulley/C 25SA7659*	2				●		
		(2) ADU conveyance roller/E 25SA5016*	2				●		
8	Reversal paper feed unit	(1) Paper exit conveyance roller/ Upper 55TA4315*	1				●		
		(2) Paper exit conveyance roller/ Middle 55TA4316*	1				●		
		(3) Paper exit conveyance roller/ Lower 55TA4317*	1				●		
		(4) Carriage idle gear/B 46207720*	1				●		
		(5) Gear/E 30007719*	2				●		

6. Periodic check (VI) (Every 3,900,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
1	Paper feed unit	(1) Conveyance solenoid (Tray 1 – 4) 4 position for feeding 12EF8251*	4				●		Actual copy count: 1,000 k copies
		(2) LCT Clutch/3 (Tray 3/4 conveyance) 55FA8233*	1				●		Actual copy count : 2,000 K copies

[4] Periodic Check (RADF [DF-312])

1. Periodic check (I) (Every 300,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
1	Paper feed unit	(1) Paper feed roller 120A4582*	1				●		Original: 90K feeds
		(2) Forward rotation roller 120A4582*	1				●		Original: 90K feeds
		(3) Separation pad 120A-458*	1				●		Original: 90K feeds
		(4) Paper dust removing pad 129H-472*	1				●		Original: 90K feeds

2. Periodic check (II) (Every 1,500,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
△2 1	Paper feed unit	(1) Pick-up clutch ass'y 129H-474*	1				●		Original: 450K feeds

[5] Periodic Check [LT-352]

1. Periodic check (I) (Every 450,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
1	Paper feed unit	(1) Double feed prevention rubber 25SA4096*	2				●		Actual copy count: 100K copies

2. Periodic check (II) (Every 900,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
1	Paper feed unit	(1) Feeding rubber / A 25AA4001*	1				●		Actual copy count: 800K copies

[6] Periodic Check [FS-106]

1. Periodic check (I) (Every 900,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
△2 1	Processing unit	(1) Stapler unit 120H5040*	2				●		Guarantee period of the Stapler unit is 500k staples.

2. Periodic check (II) (Every 2,550,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Cleaning	Check	Lubrication	Replacement	Supply	
△2 1	Drive unit	(1) Paper feed motor (Tray up/down unit motor) *1 12QR-485*	1				●		Actual feed count: 2,500K feeds

*1: When the motor is removed by CE, please remove it holding the up-down tray to paper exit with hand.

△2 [7] FNS [FS-108BM]

1. Periodic check (I) (Every 900,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
1	Stapler unit	(1) Stapler unit 129U4266*	2				●		Guarantee period of the Stapler unit is 200K staples.

2. Periodic check (II) (Every 2,550,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
1	Drive unit	(1) Paper feed motor (Tray up / down unit motor) 129U-108*	1				●		Note:When the motors is removed by CE,please remove it holding the up-down tray to paper exit with hand. Actual feed counts 2,500K feeds.

△2 [8] PI [PI-108]

1. Periodic check (I) (Every 450,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
1	Paper feed unit	(1) Feed roller unit/B 50BA-575*	1				●		Actual feed count : 100K feeds
		(2) Double feed prevention roller unit 13FG-406*	1				●		Actual feed count : 100K feeds

2. Periodic check (II) (Every 900,000 copies)

No.	Classification	Service item	Number of parts replaced	Implementation classification					Material used Tools used
				Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
1	Paper feed unit	(1) Feed roller unit/A 50BA-574*	1				●		Actual feed count : 200K feeds

[9] Actual count replacement parts

Use frequency of the following parts differs depending on the use condition. Replace the parts in accordance with the each part counter in EKC

Unit	Part number	Parts name	Q'ty	Actual count	Parts count No.
Paper feed unit	12EF8251*	Conveyance solenoid (Tray-1 feed section)	1	1,000K copies	22
	12EF8251*	Conveyance solenoid (Tray-2 feed section)	1	1,000K copies	23
☆	55FA8203*	Paper feed clutch (Tray-1 feed section)	1	2,000K copies	22
☆	55FA8203*	Paper feed clutch (Tray-2 feed section)	1	2,000K copies	23
☆	09808253*	Original solenoid (By-pass feed)	1	1,000K copies	21
☆	25SA8202*	Paper feed clutch/B (By-pass feed)	1	2,000K copies	21
	25AA4001*	Feeding rubber/A (Tray1-4)	4	800K copies	22,23,24,25
	25SA4096*	Double feed prevention rubber (Tray1-4)	8	100K copies	22,23,24,25
	55FA4233*	Paper feed rubber (By-pass)	1	140K copies	21
	54004056*	Paper supply rubber (By-pass)	1	70K copies	21
	55FA4234*	Double feed prevention rubber (By-pass)	1	70K copies	21
Tray-3 (1000LCT)	12EF8251*	Conveyance solenoid (Tray-3, feed section)	1	1,000K copies	24
Tray-4 (1500LCT)	12EF8251*	Conveyance solenoid (Tray-4, feed section)	1	1,000K copies	25
☆	55FA8231*	LCT clutch/1 (Tray-3, feed section)	1	2,000K copies	24
☆	55FA8232*	LCT clutch/2 (Tray-4, feed section)	1	2,000K copies	25
	55FA8233*	LCT clutch/3 (Tray-3/4, Conveyance)	1	2,000K copies	Total of 24 and 25
LT-352 ☆	55FA8232*	LCT clutch/2 (Tray-5 feed section)	1	2,000K copies	20
	25AA4001*	Feeding rubber/A	1	800K copies	20
	25SA4096*	Double feed prevention rubber	2	100K copies	20
ADU ☆	55FA8221*	ADU drive clutch (Conveyance section)	1	2,000K copies	26
☆	25SA8222*	ADU drive clutch/B (Reversal section)	2	1,000K copies	26
DF-312	120A4582*	Paper feed roller	1	Original 90K feeds	28
	120A4582*	Forward rotation roller	1	Original 90K feeds	28
	120A-458*	Separation pad	1	Original 90K feeds	28
	129H-472*	Paper dust removing pad	1	Original 90K feeds	28
	129H-474*	Pick-up clutch ass'y	1	Original 450K feeds	28
FS-106	12QR-485*	Paper feed motor	1	2,500K feeds	27
	120H5040*	Stapler unit	2	Each 500K staples front/rear	Front: 19 Rear: 18
FS-108BM	129U-108*	Paper feed motor	1	2,500K feeds	27
	129U4266*	Stapler unit	2	Each 200K staples front/rear	Front:19 Rear:18
PI-108	50BA-575*	Feeding roller unit/B	1	100K feeds	17
	13FG-406*	Double feed prevention roller unit	1	100K feeds	17
	50BA-574*	Feeding roller unit/A	1	200K feeds	17

[Note]

1. Presuming from the use frequency durability of the parts with ☆ marks is considered as the same as that of the main body (5,000,000 copies). However, check the counter at PM in case that the part is used frequently in particular.
2. Parts count No. is the No.displayed on the parts counter screen in the 25 mode ⑤ Parts counter.

COPY MATERIALS

[1] Maintenance Kit Construction

△2 1. Construction (150,000 copies/kit)

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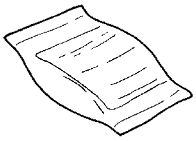
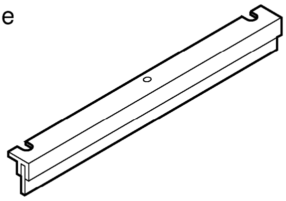
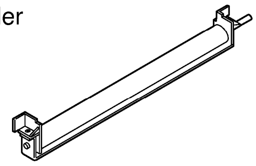
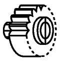
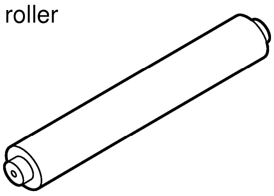
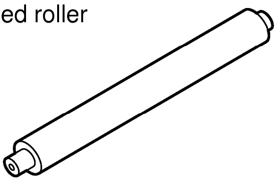
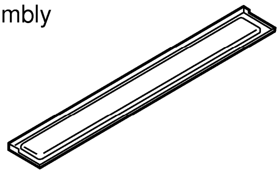
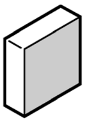
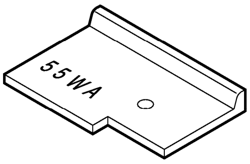
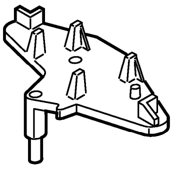
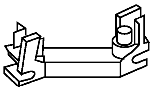
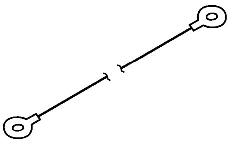
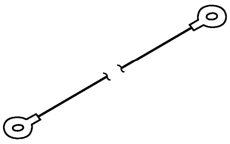
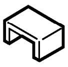
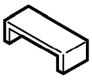
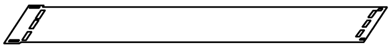
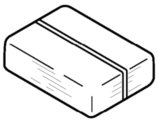
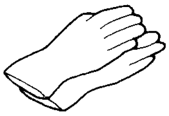
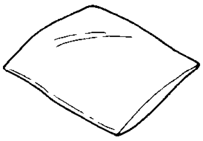
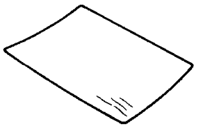
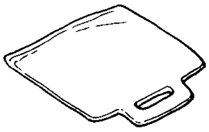
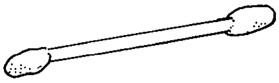
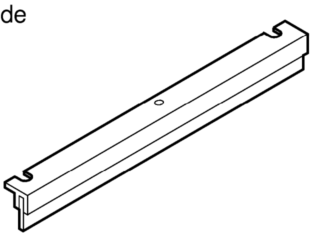
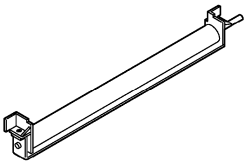
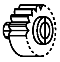
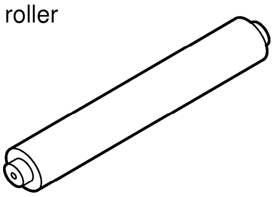
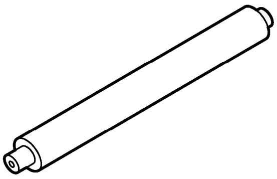
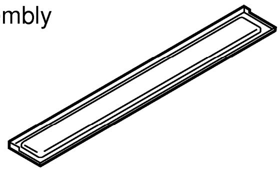
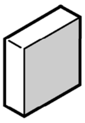
Developer 	1
Cleaning blade 	1
Toner guide roller 	1
Cleaner idler gear 	1
Fixing cleaning roller 	1
Oil impregnated roller 	1
Oil pad assembly 	1
Filter K 	1

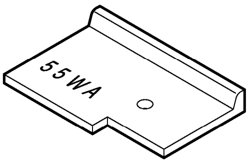
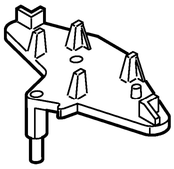
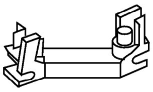
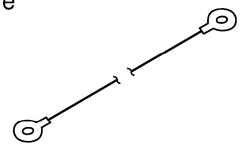
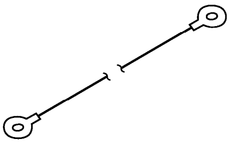
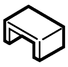
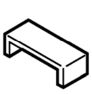
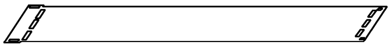
Name	Quantity
Charging cover / Rear 	1
Charging cleaning block / A assembly 	1
Charging cleaning block / B assembly 	1
Charging wire 	1
Discharging wire (transfer/separation corona unit) 	3
Transfer unit cleaning block/upper assembly 	1
Separation unit cleaning block/upper assembly 	1
Charging control plate 	1

Name	Quantity
Cleaning pad (10 sheets) 	3
Polyethylene gloves 	1 set
Dust bag (rubber band) 	1
Developer collecting sheet (rubber band) 	1
Vanity bag for collection 	1
Cotton swabs (4 pcs.) 	1

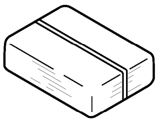
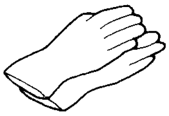
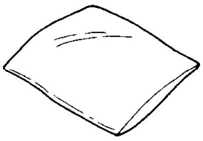
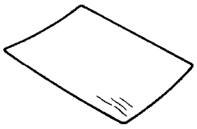
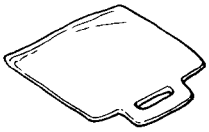
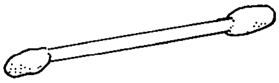
[2] PM Kit Construction

△2 1. Construction (150,000 copies/kit)

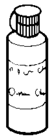
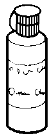
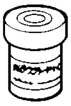
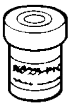
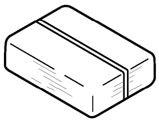
Name	Quantity
Cleaning blade 	1
Toner guide roller 	1
Cleaner idler gear 	1
Fixing cleaning roller 	1
Oil impregnated roller 	1
Oil pad assembly 	1
Filter K 	1

Name	Quantity
Charging cover / Rear 	1
Charging cleaning block / A assembly 	1
Charging cleaning block / B assembly 	1
Charging wire 	1
Discharging wire (transfer/Separation corona unit) 	3
Transfer unit cleaning block/upper assembly 	1
Separation unit cleaning block/upper assembly 	1
Charging control plate 	1

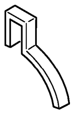
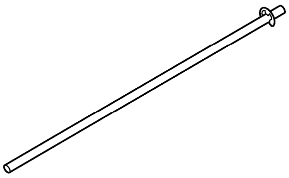
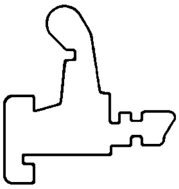
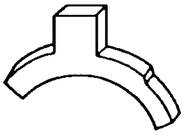
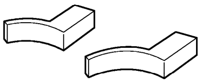
MC-Service

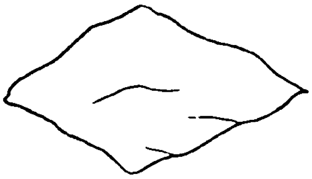
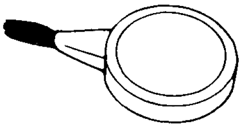
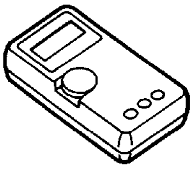
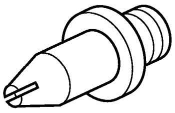
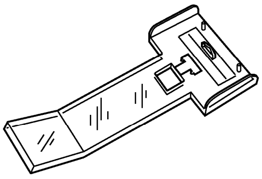
Name	Quantity
Cleaning pad (10 sheets) 	3
Polyethylene gloves 	1 set
Dust bag (rubber band) 	1
Developer collecting sheet (rubber band) 	1
Vanity bag for collection 	1
Cotton swabs (4 pcs.) 	1

SERVICE MATERIALS LIST

Material No.	Description	Shape	Remark
000V-16-0	Drum cleaner	 200 ml	
000V-17-0	Roller cleaner	 200 ml	
00GR00020	Plus guard No. 2	 25 g	
00GR00150	Molytherm grease	 25 g	
000V-19-0	Setting powder	25 g	
000V-18-0	Cleaning pad	 10 pcs 1 pack	

SPECIAL TOOLS LIST

Tool No.	Description	Shape	Quantity	Remark
7050K0010	Temp. sensor PS adjusting jig		1	
7050K0020	Optics position adjusting jig		2	
00M6-2-00	Door switch jig		1	
00M8-1-00	Thermostat PS adjusting jig (upper roller)		1	
00M8-2-00	Thermostat PS adjusting jig (lower roller)		1	
00VD-5000	New pyramid chart		1	

Tool No.	Description	Shape	Quantity	Remark
00VC-2-00	Drum cover		1	
00VD-1000	Blower brush		1	
00VE-1004	Tester	 (00VE-1004)	1	
120A1052*	PS jig		2pc/1set	DF-311/DF-312
120A9711*	ADJ chart		1	DF-311/DF-312
120A9712*	White chart		1	DF-311/DF-312
129XJG011	Stapler PS jig		1	FS-108BM

Konica

DF-312

SERVICE HANDBOOK

Jan. 2000
Ver. 2.0

KONICA CORPORATION
TECHNOLOGY SUPPORT CENTER
TOKYO JAPAN

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SAFETY AND IMPORTANT WARNING ITEMS ....
Refer to the 7065 service handbook on page C-1

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This section covers the structure, functions, operation and method of disassembling and assembling the machine.
Observe the following precautions when performing disassembly and assembly work.

1. Be sure to unplug the power cord before working on the machine.
2. Perform all reassembly work by reversing the order in which the component was disassembled, unless otherwise specified.
3. Do not lose small parts (screws, etc.) or insert them in the wrong place.
4. Install all parts completely before operating the machine.
5. Do not loosen the screws indicated as disallowed for removal.

1

DF-312

DF-312 PRODUCT SPECIFICATIONS

[1] Type

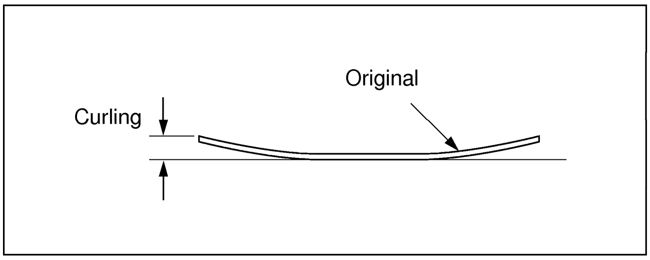
Type:	Sheet-through type reversible DF

[2] Functions

Originals size:	A3, B4, A4, A4R, B5, B5R, B6R, 8.5 x 11 · All sizes are detected automatically. · Mixing of original sizes possible.

Kinds of originals

Ordinary paper:	50 - 130 g/m^2 fine quality paper
Special paper:	Paper feed and conveyance ability may sometimes be inferior to those of 50 to 130 g/m^2 fine quality paper. The following kinds of paper cannot be used: · OHP film · Blueprint masters · Label paper · Offset masters · Pasted originals
Original curling:	Less than 10 mm Max.



Maximum number of stacked originals:
50 sheets Max. (80g/m^2)

Original read speed (copies per minute)

Mode	Original size	Feed speed
Single-sided original to Single-sided copy	A4	65
Dual-sided original to duplex copy	A4	38

Original feed layout: Face-up setting, centered, U-turn feed/straight paper exit, reversal section mounted at paper exit side.

Original image read position:
At the slit glass section

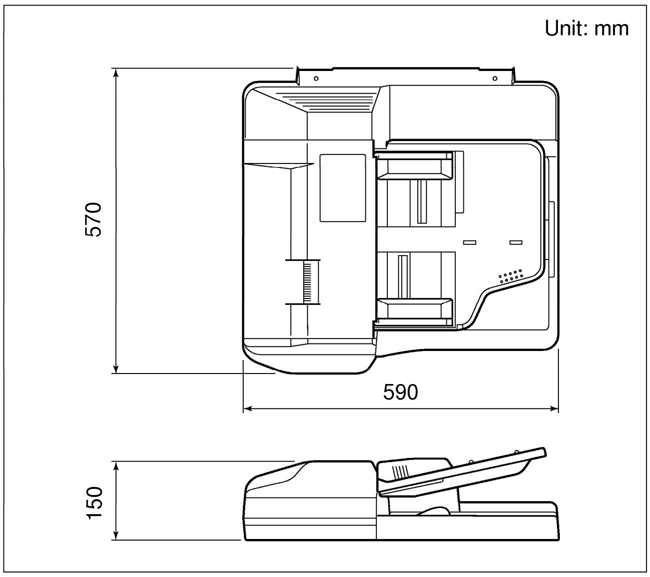
[3] Machine Data

Power source: 24 V DC / 5 V (supplied from the main body)

Max. power consumption:
Less than 120 VA

Weight: Approx. 14.5 kg

Machine dimensions :



[4] Maintenance

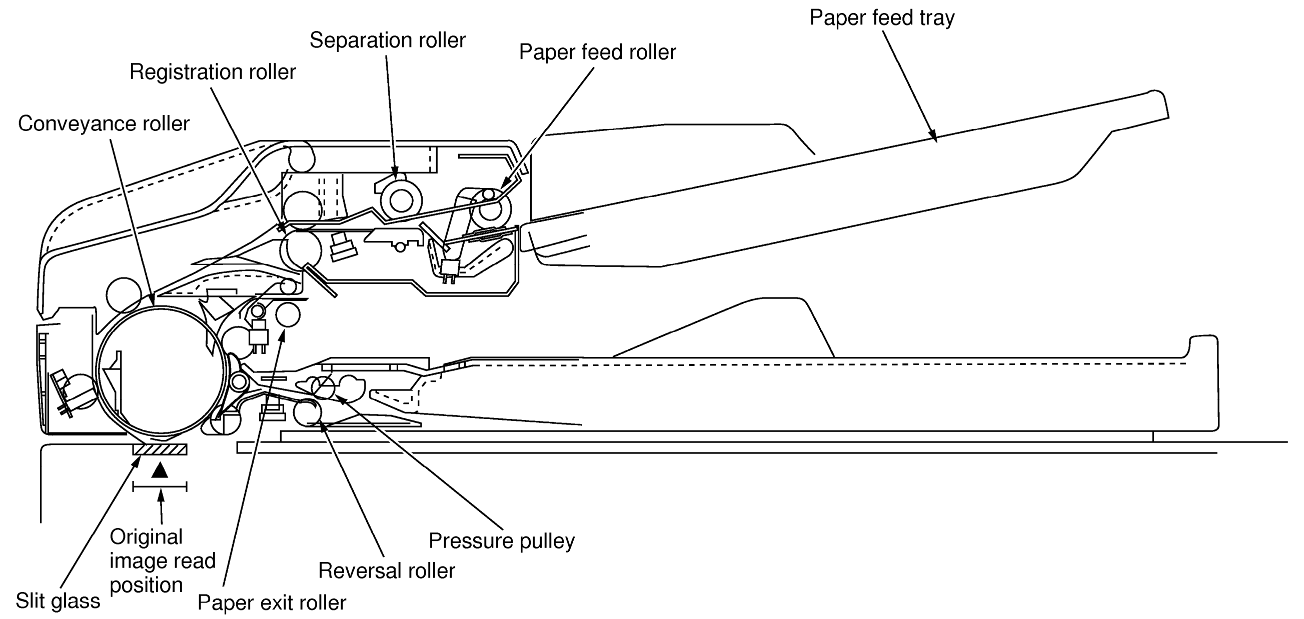
Maintenance: Same as the main body

[5] Operating Environment

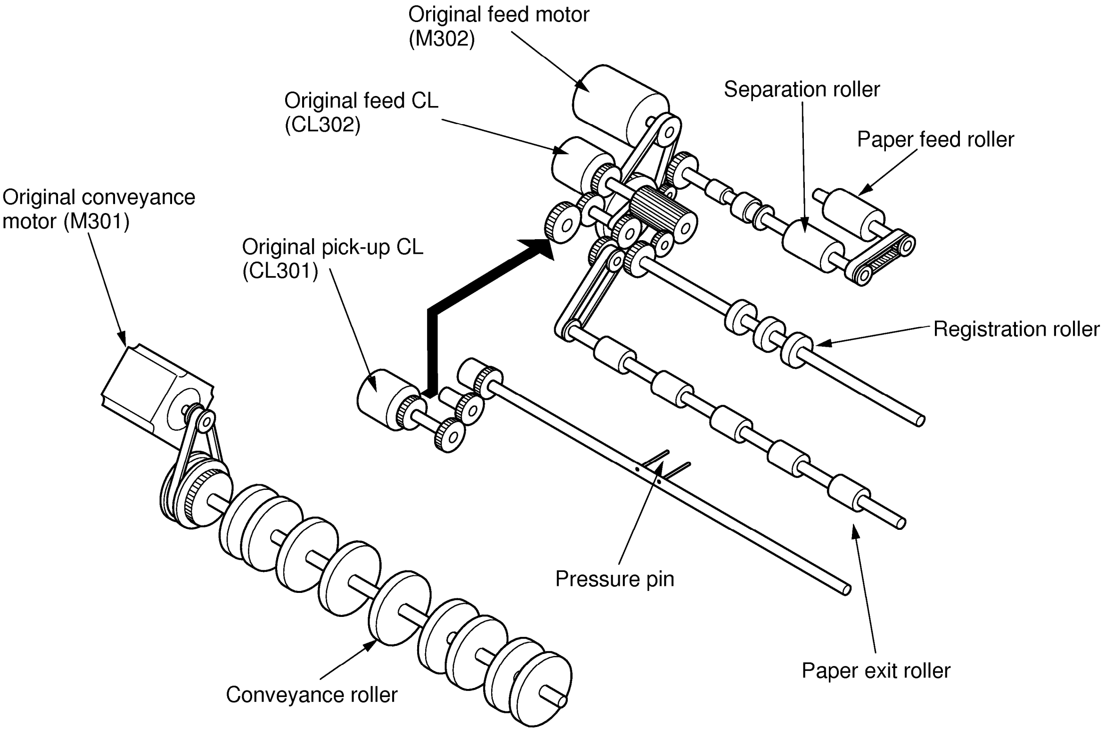
Temperature:	10°C ~ 30°C
Humidity:	10% to 80%RH

Note: The contents of this manual may be changed without prior notice.

CENTER CROSS-SECTIONAL DRAWING

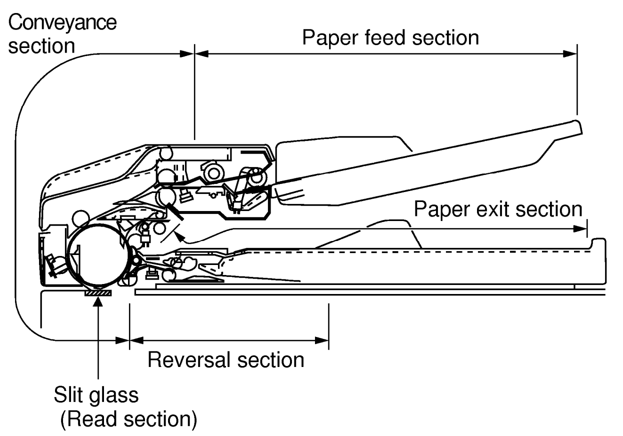

Paper feed tray
Separation roller
Paper feed roller
Registration roller
Conveyance roller
Original image read position
Pressure pulley
Reversal roller
Slit glass
Paper exit roller

DRIVE SYSTEM DRAWING


Original feed motor (M302)
Original feed CL (CL302)
Separation roller
Paper feed roller
Original conveyance motor (M301)
Original pick-up CL (CL301)
Registration roller
Pressure pin
Paper exit roller
Conveyance roller

ORIGINAL CONVEYANCE PROCESS

As the figure below shows, the DF-312 is composed of the paper feed section, conveyance section, reversal section and paper exit section.

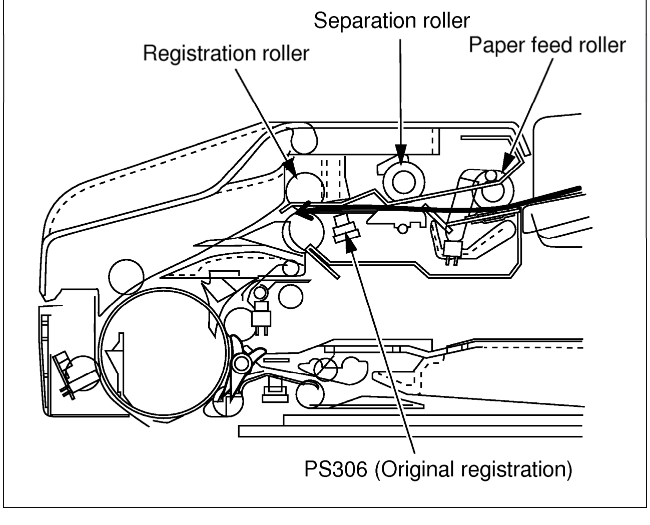

Conveyance section
Paper feed section
Paper exit section
Reversal section
Slit glass
(Read section)

The originals, which have been placed in the paper feed tray with the front side facing up, are fed starting with the topmost original. Originals that are fed are not conveyed to the original glass. Reading is carried out as the original passes by the slit glass section set midway through the conveyance path.

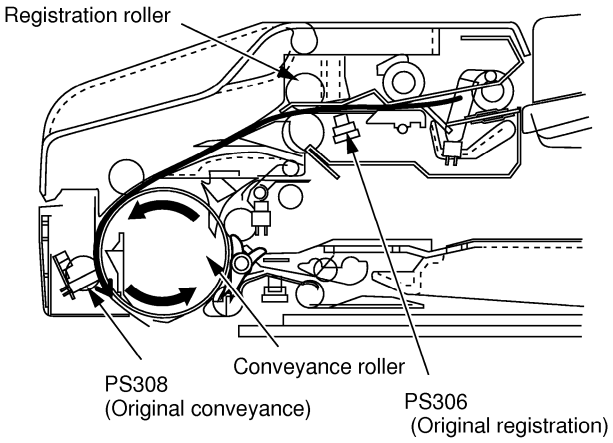
The operational modes of the DF-312 include three modes: (a) single side original copy mode, (b) double side original copy mode, (c) mixed original copy mode. The conveyance path is different for each mode.

[1] Single side original copy mode (single side to single side copy, single side to double side copy)

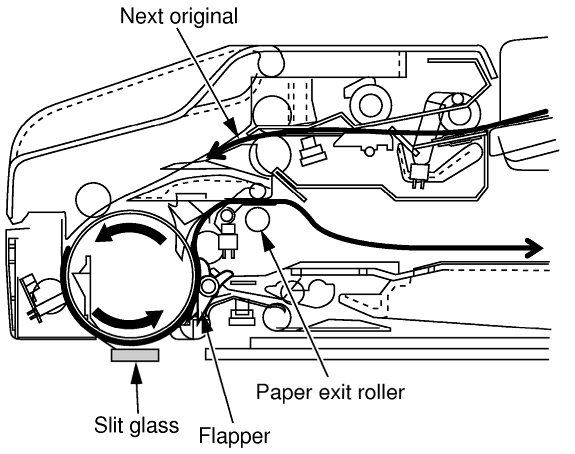
The originals set in the paper feed tray are fed by means of the paper feed roller and separation roller to the position where PS306 (original registration) goes on.


Separation roller
Registration roller
Paper feed roller
PS306 (Original registration)

When PS306 goes on, pre-feed is carried out by the registration roller and the original is conveyed to the conveyance roller at high speed. When PS308 (Original conveyance) detects the leading edge of the original, the conveyance roller switches to scanning speed and conveys the original to the slit glass.
If there is next original at this time, pre-feed is carried out.


Registration roller
Conveyance roller
PS308
(Original conveyance)
PS306
(Original registration)

Reading of the original is carried out when the original passes over the slit glass. Originals which have been read are conveyed around the circumference of the conveyance roller by closing of the flapper and are ejected to the paper exit section via the paper exit roller.


Next original
Paper exit roller
Slit glass
Flapper

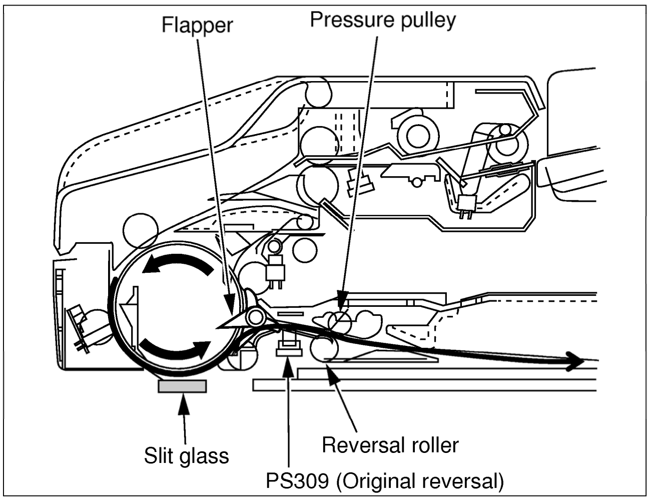
[2] Double side original copy mode

(double side to single side copy, double side to double side copy)

The original conveyance operation until the start of scanning for the front side of the 1st double side original is the same as that of the single side original copy mode.

When scanning starts and reading of the front side is completed, the original is conveyed to the reversal section when the flapper opens and the paper exit path is blocked.

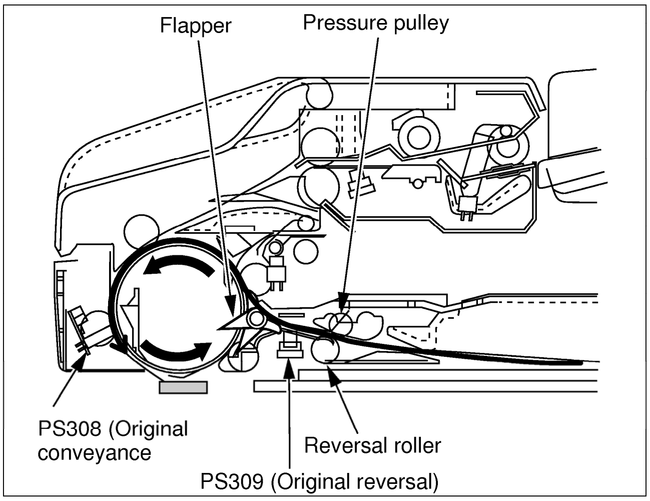
When PS309 (original reversal) detects the leading edge of the original that has been conveyed to the reversal section and goes ON, pressure is applied to the pressure pulley. As a result, the reversal roller and pressure pulley clasp the original on both sides and convey it to the inside of the reversal section.


Flapper
Pressure pulley
Slit glass
Reversal roller
PS309 (Original reversal)

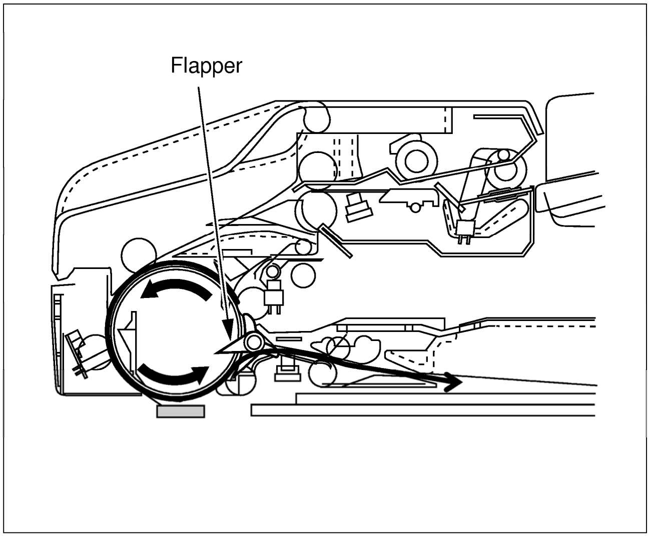
When PS309 detects the trailing edge of the original and goes OFF, the reversal roller rotates in the reverse direction to feed the original from the reversal section to the conveyance roller. Since the original passes over the top of the flapper at this time, the front and back sides are reversed and the original is sent to the conveyance roller.

The conveyance roller conveys the original to PS308 (Original conveyance) at high speed.

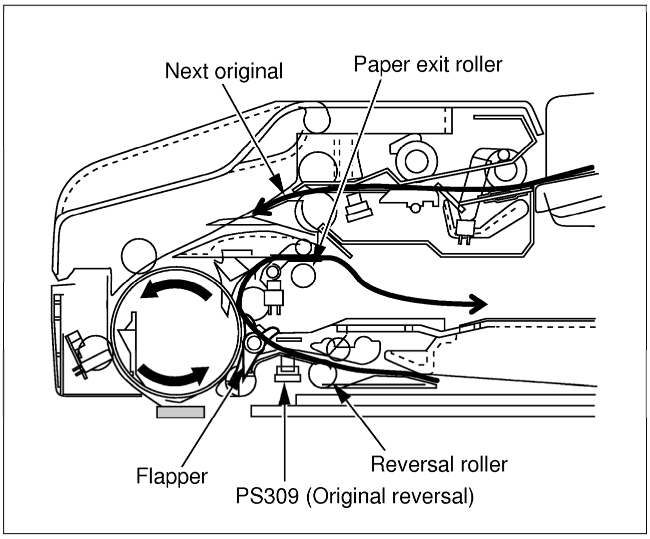
When PS308 detects the leading edge of the original, the conveyance roller switches back to scanning speed and conveys the original to the slit glass for the original to be scanned.


Flapper
Pressure pulley
PS308 (Original conveyance
Reversal roller
PS309 (Original reversal)

When scanning of the back side starts, the flapper is opened. As a result, the original which has been read is conveyed to the inside of the reversal section again.



When PS309 detects the trailing edge of the original and goes OFF, the reversal roller rotates in the reverse direction to feed the original from the reversal section to the conveyance roller. Since the flapper is closed at this time, the original is conveyed along the flapper and is ejected to the paper exit section via the paper exit roller.


Next original
Paper exit roller
Flapper
Reversal roller
PS309 (Original reversal)

[3] Mixed original copy mode

The mixed original copy mode can handle both the same series and different series of originals.

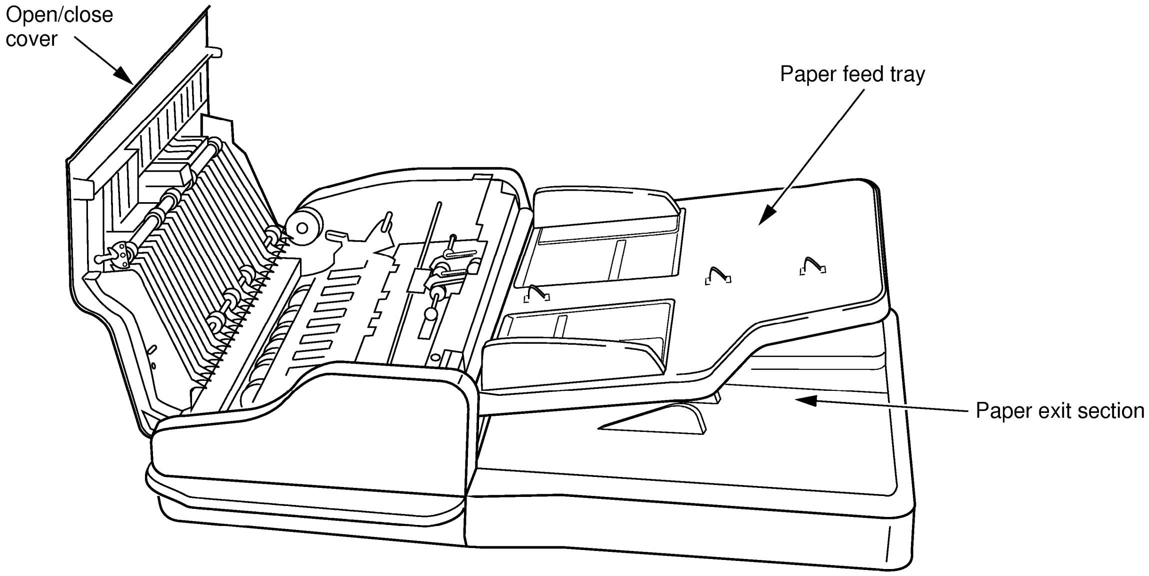
The size of the original in the conveyance direction is determined by the ON time of PS306, size detection operation take place prior to the scanning operation.

The original then stops at the scanning standby position. The subsequent operations are the same for all copy modes.

For details on the size detection operation, refer to Paper Feed/ Paper Eject section “[6] Original Size Detection Control”.

EXTERNAL SECTION

[1] Composition

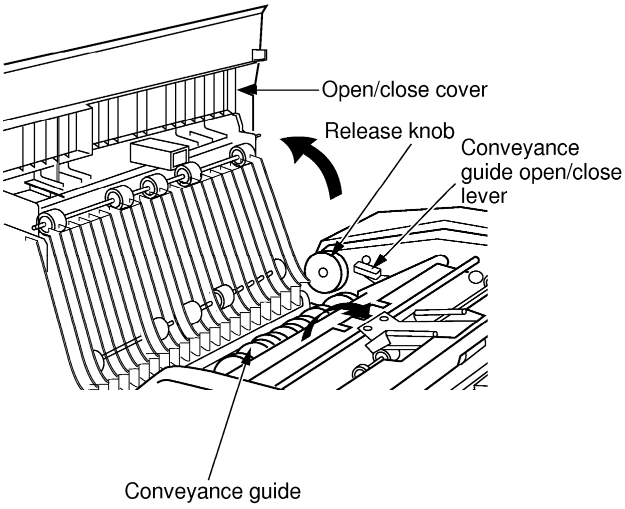

Open/close cover
Paper feed tray
Paper exit section

[2] Mechanism

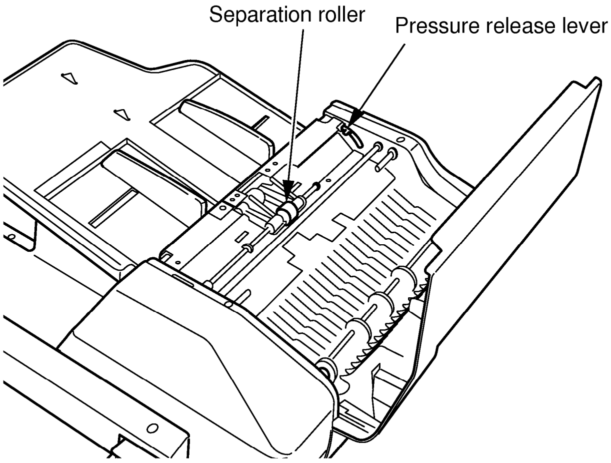
	Mechanisms	Methods
∗ 1	Jam clearance	Open/close cover Release knob Conveyance guide open/close lever Pressure release lever Platen guide

∗1: Jam clearance

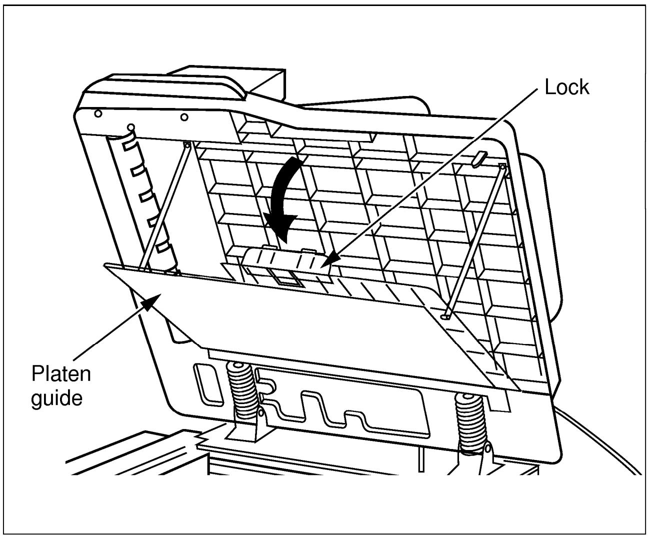
If a paper jam occurs during the feed process, open the open/close cover, raise the conveyance guide open/close lever, and rotate the release knob to remove the jammed original.


Open/close cover
Release knob
Conveyance guide open/close lever
Conveyance guide

If the jammed original is hard to remove, operate the pressure release lever to remove the pressure of the separation roller, and then remove the original.


Separation roller
Pressure release lever

If a paper jam occurs during the reversal process, the jammed original can be removed by opening the platen guide.


Lock
Platen guide

[3] Disassembly and Re-assembly

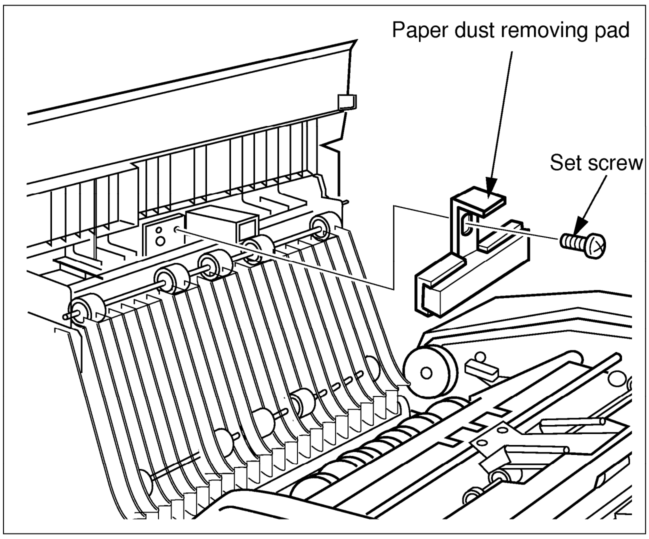
1. Removing and Re-installing the Paper Dust Removing Pad

⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

a. Procedure

(1) Open the open/close cover.

(2) Remove the set screw, then remove the paper dust removing pad.


Paper dust removing pad
Set screw

(3) Re-install the paper dust removing pad in the opposite sequence to removal.

2. Removing the RADF

⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

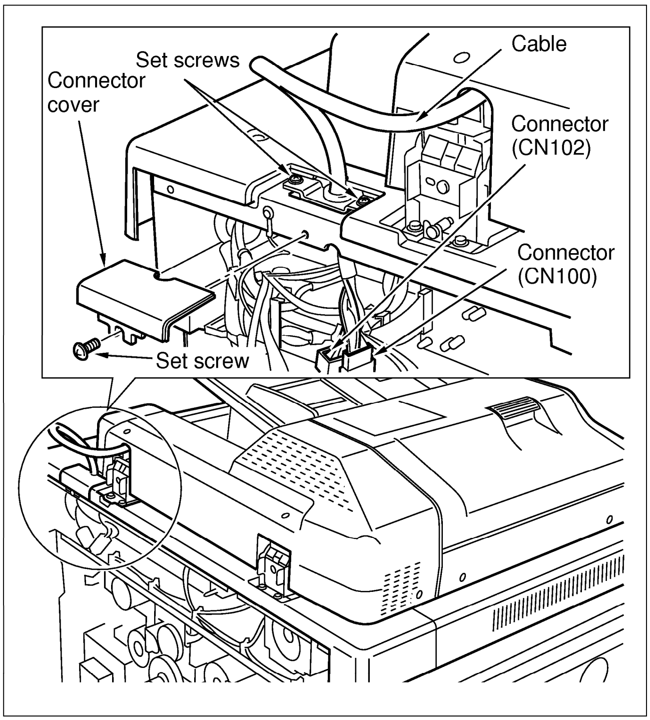
a. Procedure

(1) Remove the rear cover.

(2) Remove the set screw, then remove the connector cover.

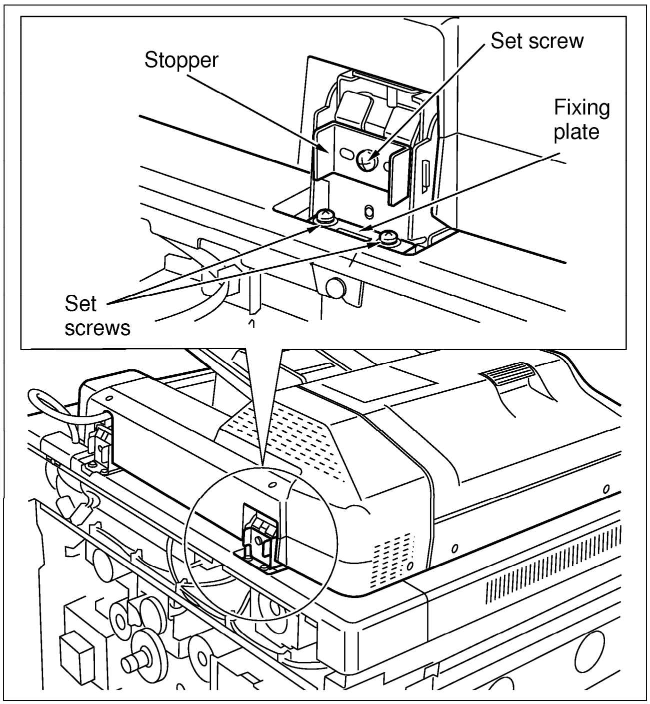
(3) Remove the two connectors (CN100, CN102).

(4) Remove the two set screws, then withdraw the cable from the main body.

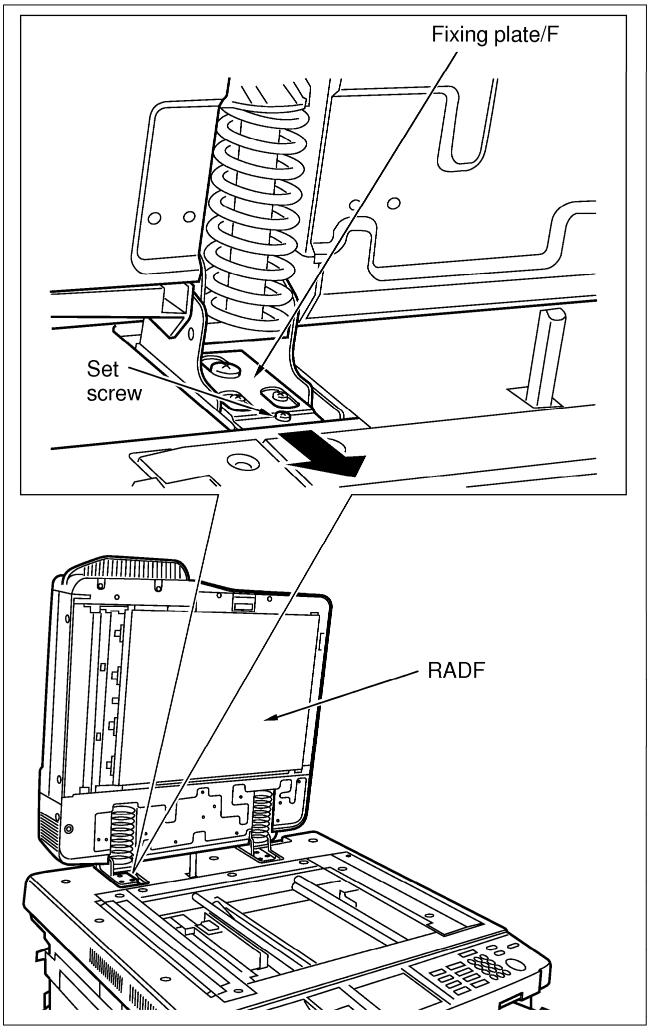

Set screws
Cable
Connector cover
Connector (CN102)
Connector (CN100)
Set screw

(5) Remove the set screw from each, then remove the two stoppers.

(6) Remove the two set screws from each, then remove the two fixing plates.


Stopper
Set screw
Fixing plate
Set screws

(7) Open the RADF.
(8) Remove the set screw from each while supporting the RADF, then remove the two fixing plates.
(9) Remove the RADF from the main body.


Fixing plate/F
Set screw
RADF

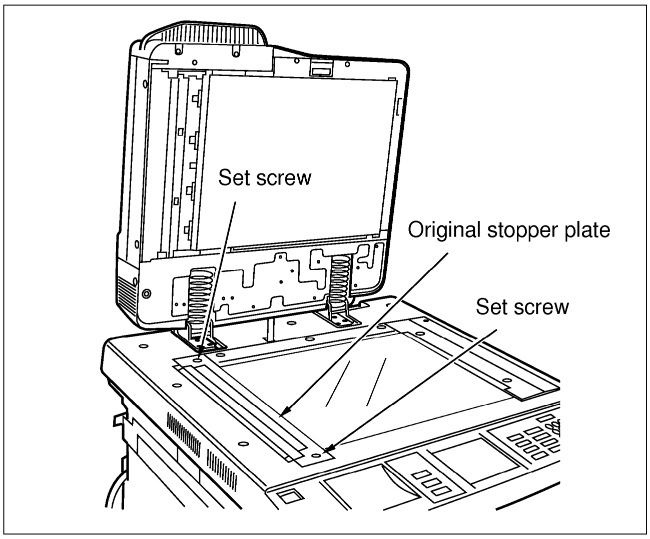
Caution: Be sure to support the RADF during this process as it may fall to the rear side when the fixing plate/F has been removed.

2. Re-installing the RADF

⚠**Caution:** **Be sure that the power cord has been unplugged from the power outlet.**

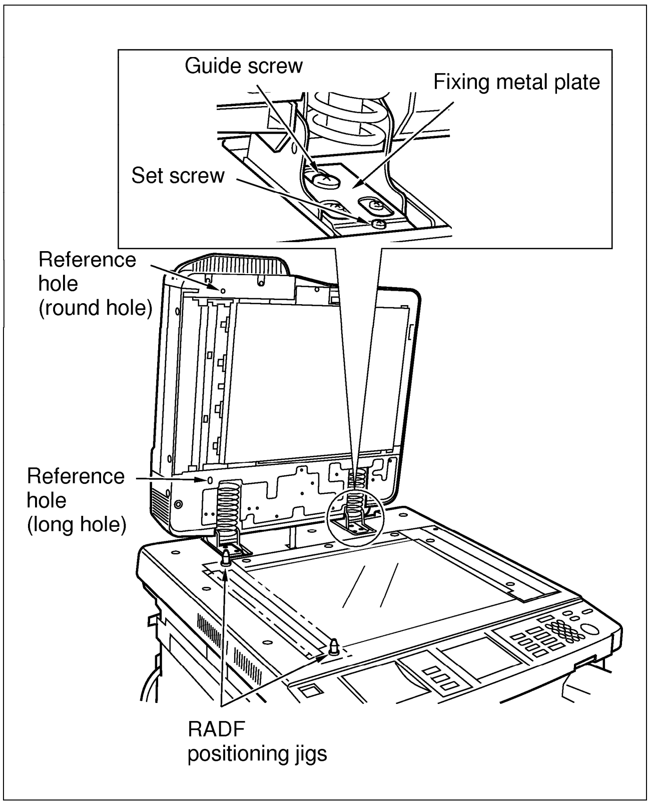
a. Procedure

(1) Remove the two set screws, then remove the original stopper plate of the main body.


Set screw
Original stopper plate
Set screw

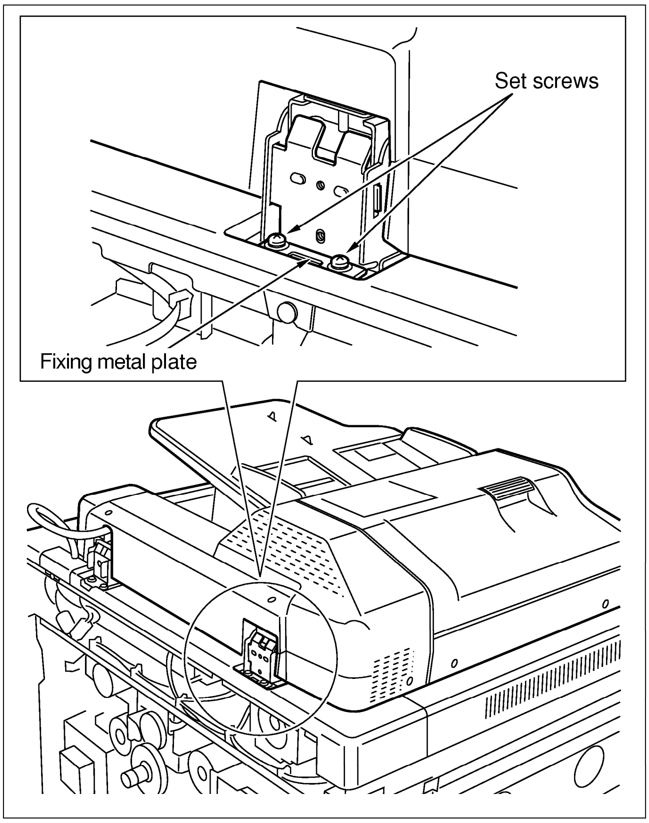
(2) Install the two RADF positioning jigs in the hole of the original stopper plate.
(3) After re-installing the RADF, secure the two fixing metal plates temporarily with the set screws each.

Caution: The double-loop hole section of fixing metal plate must be set in the guide screw.


Guide screw
Fixing metal plate
Set screw
Reference hole (round hole)
Reference hole (long hole)
RADF positioning jigs

(4) Close the RADF, and match the reference hole with the RADF positioning jig.

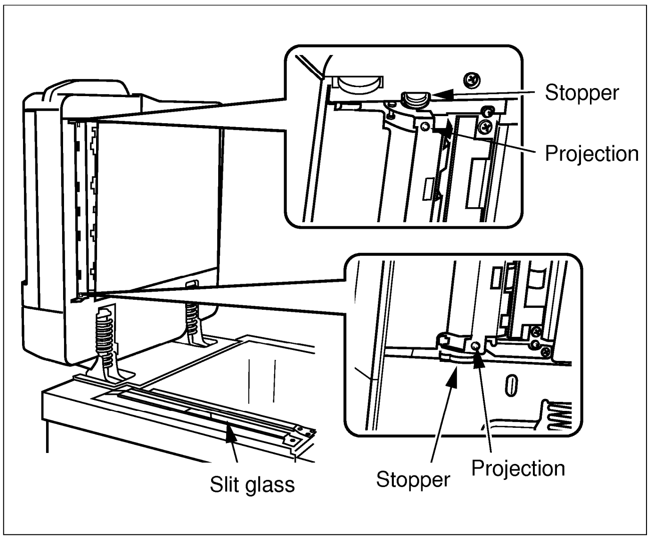
(5) When the two positions are matched, secure each of the two set screws of the fixing metal plate.


Set screws
Fixing metal plate

(6) Open the RADF and secure each of the set screw of the fixing metal plate.

(7) Remove the two RADF positioning jigs, then install the original stopper plate.

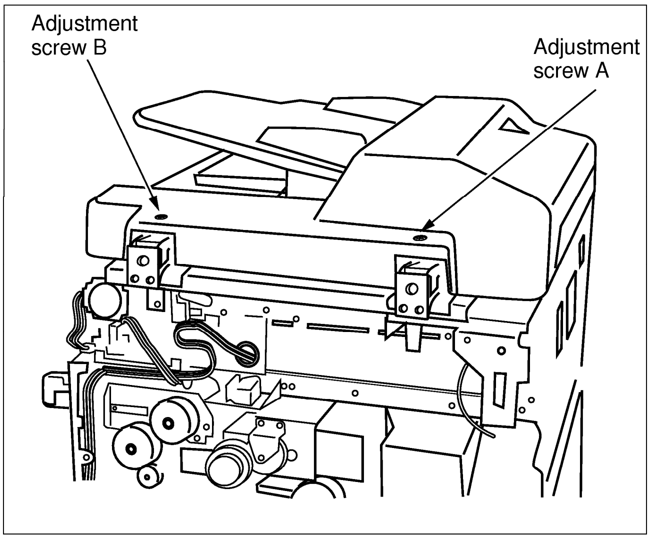
(8) Close the RADF, and check whether or not the stoppers of the read section at the 2 locations contact with the slit glass.


Stopper
Projection
Slit glass
Stopper
Projection

(9) Adjust the adjustment screws A and B alternately so that both stoppers contact with the slit glass.

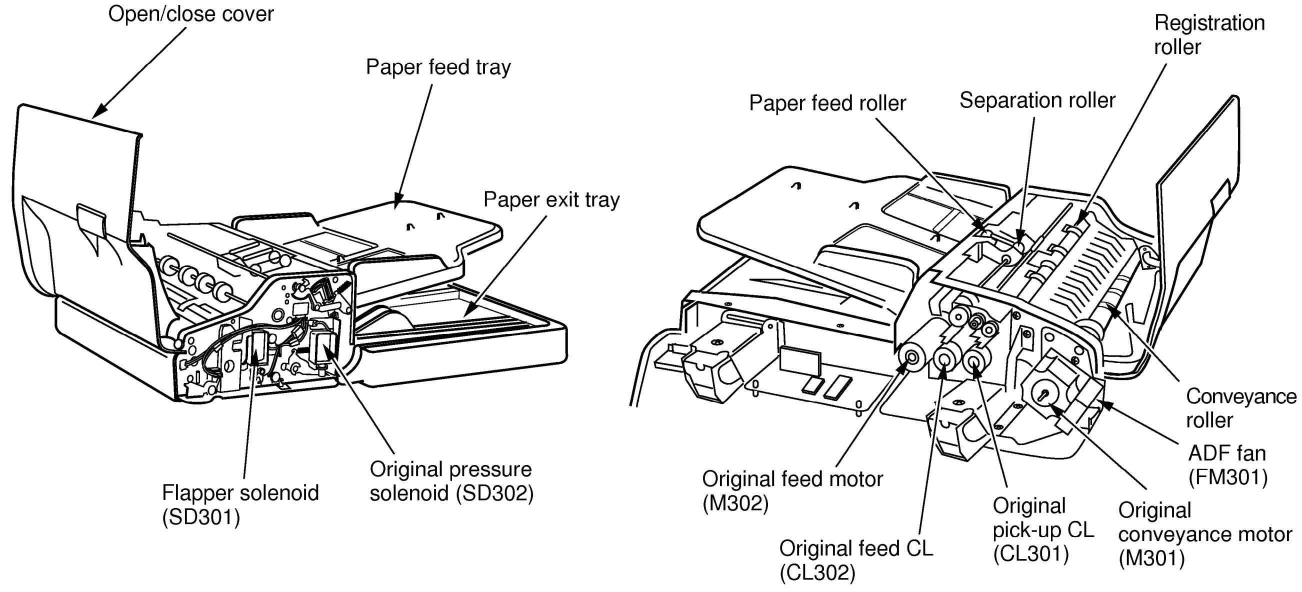
Caution: Repeat Step (8) to (9) until both stoppers make contact with the slit glass simultaneously.

(10) Re-installing hereafter is performed in the opposite sequence to removal.


Adjustment screw B
Adjustment screw A

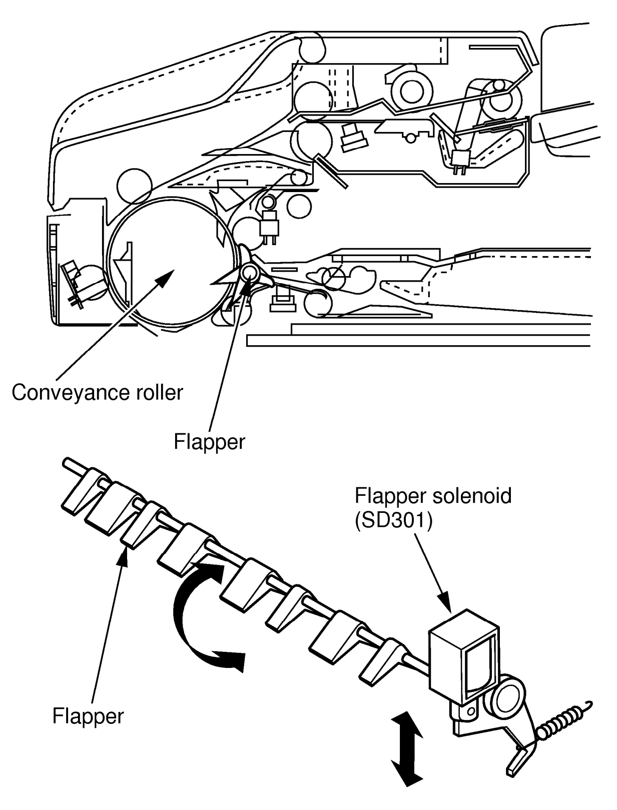
PAPER FEED/PAPER EXIT SECTION

[1] Composition


Open/close cover
Paper feed tray
Paper exit tray
Flapper solenoid (SD301)
Original pressure solenoid (SD302)
Registration roller
Paper feed roller
Separation roller
Conveyance roller
ADF fan (FM301)
Original feed motor (M302)
Original pick-up CL (CL301)
Original conveyance motor (M301)
Original feed CL (CL302)

[2] Mechanism

	Mechanisms	Methods
	Paper feed	Paper feed roller
	Double feed prevention	Double feed prevention pad Separation roller
	Conveyance	Conveyance roller
*1	Conveyance path switching	Flapper
*2	Reversal paper feed	Reversal roller pressure Reversal roller turn-back

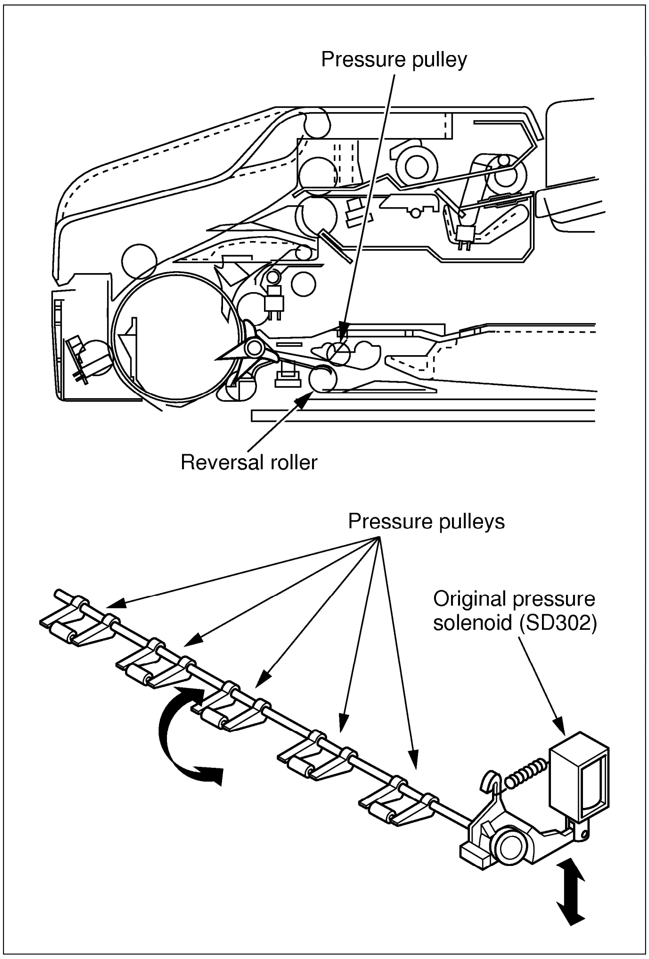

Conveyance roller
Flapper
Flapper solenoid (SD301)
Flapper

*1: Conveyance path switching

In the double side original copying, the conveyance path after the end of reading operations differs for front side copies and back side copies. Change of the conveyance path is carried out by the flapper. Turning the flapper solenoid (SD301) ON and OFF switches between the reversal section and the paper exit section.

∗2: Reversal paper feed

During double side original copy operation, conveyance and reversal paper feed are activated by bringing the pressure pulleys into contact with the reversal roller. Pressure of the pressure pulleys is driven by the original pressure solenoid (SD302).


Pressure pulley
Reversal roller
Pressure pulleys
Original pressure solenoid (SD302)

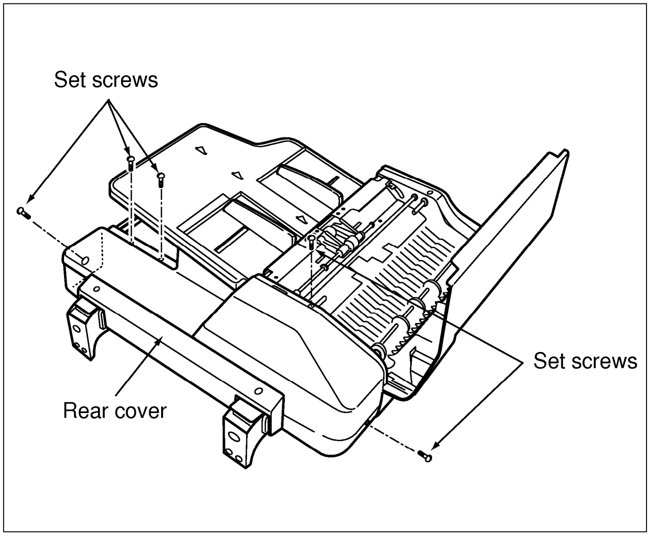
[3] Disassembly and Re-assembly

1. Removing and Re-installing the paper feed roller/separation roller

⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

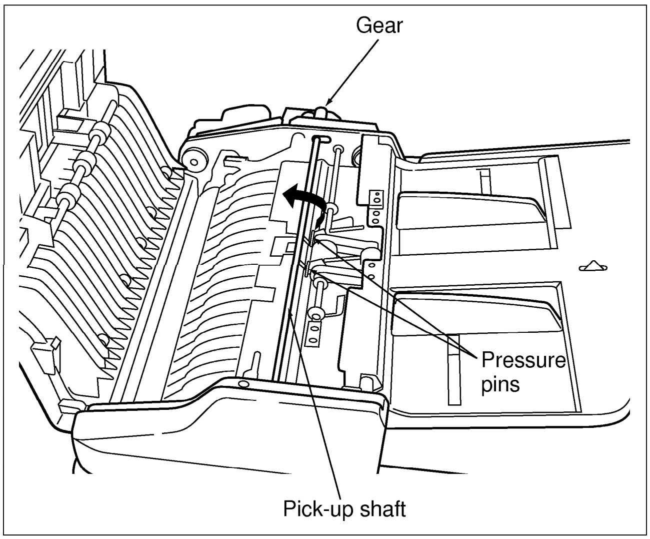
a. Procedure

(1) Remove the five set screws, and then remove the rear cover.


Set screws
Set screws
Rear cover

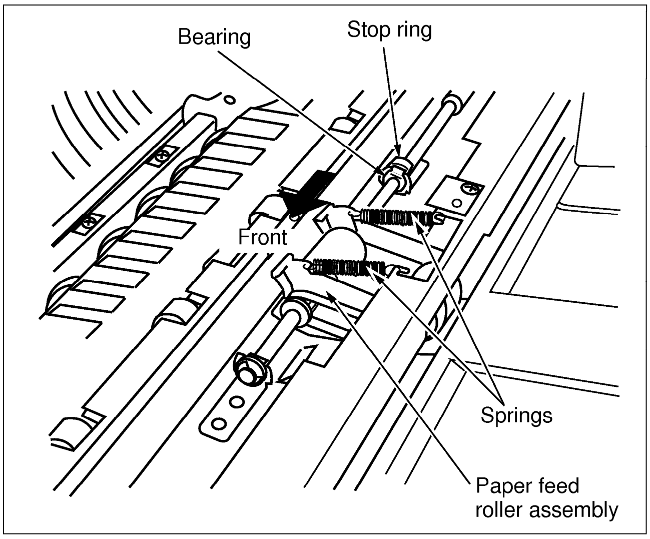
(2) Open the open/close cover.

(3) Rotate the gear until the two pressure pins on the pickup shaft point up.


Gear
Pressure pins
Pick-up shaft

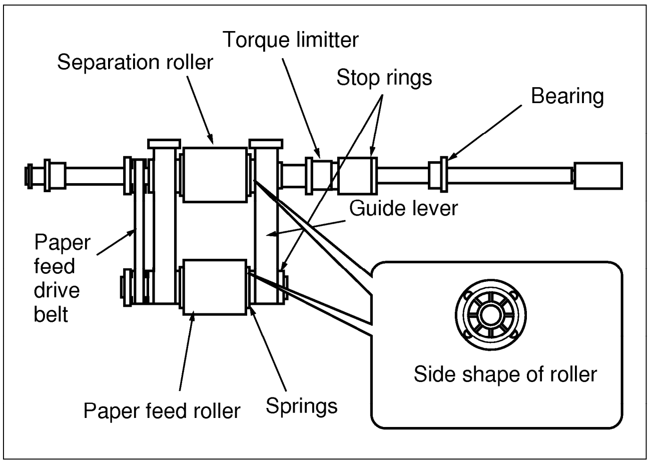
Caution: The pick-up shaft cannot be turned directly. Be sure to rotate it via the gear.

(4) Remove the two springs.
(5) Remove the stop ring and slide the bearing to the side.
(6) Slide the paper feed roller assembly towards the front side, then remove it.


Bearing
Stop ring
Front
Springs
Paper feed roller assembly

(7) Remove the bearing.
(8) Remove the two stop rings, then remove the guide lever.
(9) Remove the separation roller and paper feed roller.

Caution: When re-installing each roller, pay attention to correct roller orientation. (The correct orientation can be determined by looking at the side shape of the roller.)
Do not lose the spring of the paper feed roller.


Torque limitter
Separation roller
Stop rings
Bearing
Guide lever
Paper feed drive belt
Side shape of roller
Paper feed roller
Springs

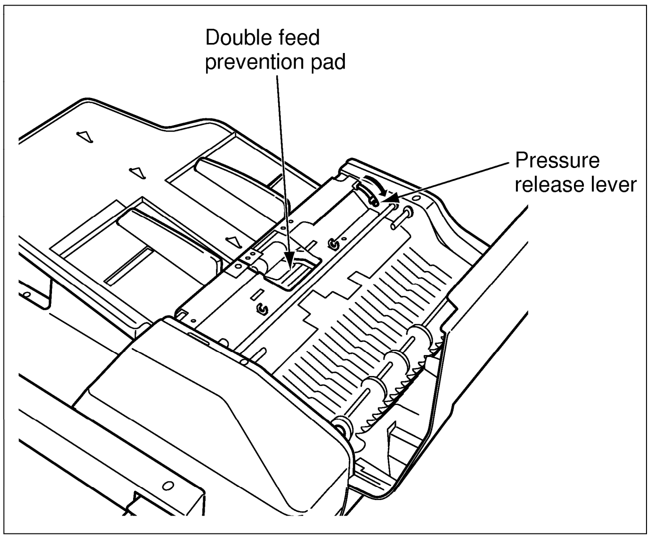
(10) Re-install the paper feed roller and separation roller in the opposite sequence to removal.

2. Removing and Re-installing the double feed prevention pad

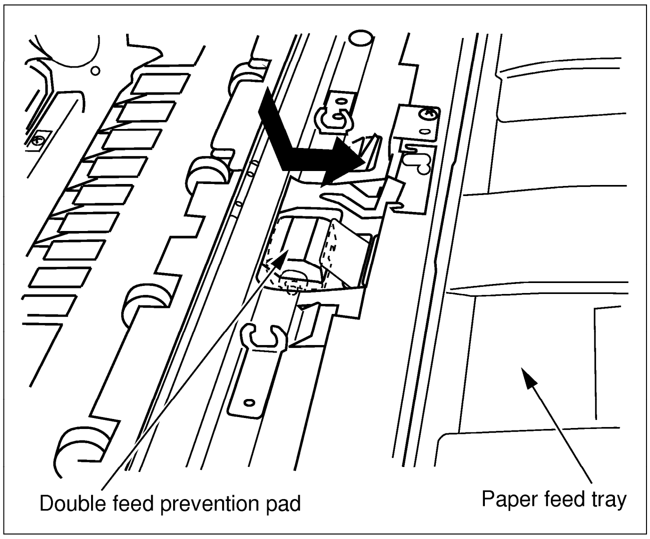
⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

a. Procedure

(1) Remove the paper feed roller assembly.
(2) Push the pressure release lever so that pressure on the double feed prevention pad is released.

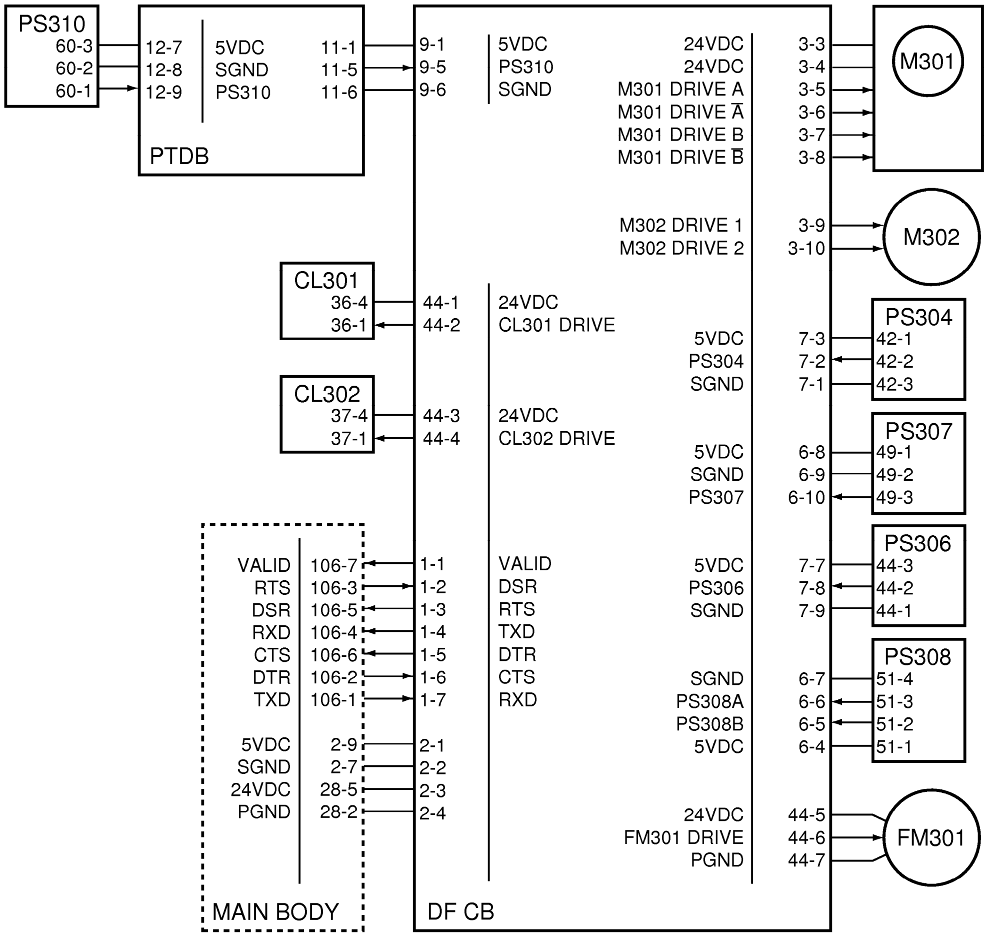

Double feed prevention pad
Pressure release lever

(3) Push the double feed prevention pad down, slide it towards the paper feed tray, and then remove it.


Double feed prevention pad
Paper feed tray

(4) Re-install the double feed prevention pad in the opposite sequence to removal.

[4] Paper feed/conveyance/scan control


PS310
60-3
60-2
60-1
12-7
12-8
12-9
5VDC
SGND
PS310
11-1
11-5
11-6
PTDB
9-1
9-5
9-6
5VDC
PS310
SGND
24VDC
24VDC
M301 DRIVE A
M301 DRIVE Ā
M301 DRIVE B
M301 DRIVE B̄
3-3
3-4
3-5
3-6
3-7
3-8
M301
M302 DRIVE 1
M302 DRIVE 2
3-9
3-10
M302
CL301
36-4
36-1
44-1
44-2
24VDC
CL301 DRIVE
PS304
5VDC
PS304
SGND
7-3
7-2
7-1
42-1
42-2
42-3
CL302
37-4
37-1
44-3
44-4
24VDC
CL302 DRIVE
PS307
5VDC
SGND
PS307
6-8
6-9
6-10
49-1
49-2
49-3
VALID
RTS
DSR
RXD
CTS
DTR
TXD
106-7
106-3
106-5
106-4
106-6
106-2
106-1
1-1
1-2
1-3
1-4
1-5
1-6
1-7
VALID
DSR
RTS
TXD
DTR
CTS
RXD
PS306
5VDC
PS306
SGND
7-7
7-8
7-9
44-3
44-2
44-1
PS308
SGND
PS308A
PS308B
5VDC
6-7
6-6
6-5
6-4
51-4
51-3
51-2
51-1
5VDC
SGND
24VDC
PGND
2-9
2-7
28-5
28-2
2-1
2-2
2-3
2-4
24VDC
FM301 DRIVE
PGND
44-5
44-6
44-7
FM301
MAIN BODY
DF CB

Paper feed takes place by transmitting the drive force of motor M302 (original feed) to the paper feed roller and separation roller. Conveyance takes place by transmitting the drive force of motor M301 (original conveyance) to the conveyance roller. M301 and M302 are controlled by the DF CB (RADF control board).

1. Operation

a. Sensor adjustment when the power is ON.

When SW1 (main) is ON, PS306 (original registration) and PS308 (original conveyance) are adjusted automatically. However, if the RADF open/close cover is open or an original is inside of the RADF, there will be no automatic adjustment.

b. Original pressure operation

When a control signal from the main body is received, CL301 (original pickup) goes ON, and after the specified time M302 starts to rotate in the forward direction. This causes the paper feed roller to be lowered, applying pressure to the original. After the specified time, M302 and CL301 go OFF and when another specified time goes by, SD302 goes OFF, but the pressure on the original is maintained until CL301 goes ON.

c. Paper feed operation

When CL302 (original feed) goes ON, the driving force of M302 is transmitted to the paper feed roller and the separation roller.

CL302 goes ON at the same time as M302 performs forward rotation. When M302 switches from forward to reverse rotation, paper feed starts.

When PS306 (original registration) goes ON, the reverse rotation of M302 is switched to normal rotation after the specified time.

d. Pre-feed of first sheet

Pre feed operation starts by the forward rotation of M302. This causes the original to be moved to the conveyance roller.

M301 (original conveyance) has already turned ON after the specified time from when CL301 went ON, and conveys the original which reaches the conveyance roller to the read position.

As a result, when PS308 (original conveyance) detects the leading edge of the original and turns ON, normal rotation of CL302 and M302 go OFF. After the specified time, starting from this point, M301 slows down and starts scanning.

e. Pre-feed of second and further sheets

The original, which started pre-feed from the normal rotation of M302, is conveyed to the conveyance roller as it is if the previous original has been scanned.

If the original is under scan, M302 will rotate in the normal direction again at the same time as when the scan is finished, and feed the original to the conveyance roller after turning M302 OFF and stopping it temporarily.

M301 will increase the rotation speed of the conveyance roller at the time when the previous original has been scanned.

The normal rotation of CL302 and M302 will go OFF when PS308 detects the leading edge of the original and goes ON. Starting from this point, M301 will slow down after the specified time and starts scanning.

f. Scanning operation (except final original)

After the specified time from when M301 starts to decrease its speed, the original pass over the slit glass area of the main body, where scanning is performed.

When PS306 detects the trailing edge of the original that is being scanned and goes OFF, CL302 again goes ON and the feed operation of the next original starts.

From the time when the original scan is finished, M301 increases the rotation speed of the conveyance roller.

g. Scanning operation (final original)

When PS301 (final original detection) goes OFF, M301 judges that the original currently being scanned is the last one.

When PS307 (original exit detect) goes OFF, M301 also goes OFF after the specified time.

h. Original pressure release operation

When M301 completes the scanning operation for the last original and goes OFF, CL301 and M302 (reverse rotation) go ON which causes the original pressure to be released. After the specified time, CL301 and M302 go OFF.

i. FM301 (ADF fan) operation

M301 (original conveyance) is cooled by FM301 to prevent it from rising up to a high temperature during operation.

- ON timing
  When CL301 is ON during paper feed of the 1st original.
- OFF timing
  After the specified time from when CL301 goes OFF during paper feed of the final original.

2. Signals

a. Input signals

(1) PS304 (PS304 → DF CB)
M301 encoder surface slit detection signal
[L]: Slit is not detected
[H]: Slit is detected

(2) PS306 (PS306 → DF CB)
Original detection signal at the conveyance roller entrance section
[L]: Original is detected
[H]: Original is not detected

(3) PS307 (PS307 → DF CB)
Original detection signal at the paper exit section
[L]: Original is detected
[H]: Original is not detected

(4) PS308 A, B (PS308 → DF CB)
Original detection signal at the pre-scanning standby position
[L]: Original is detected
[H]: Original is not detected
PS310 (PS310 → PTDB → DF CB)

(5) Final original detection signal of the original tray
[L]: With original
[H]: Without original

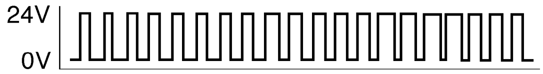
(6) TXD (MAIN BODY → DF CB)
Serial data line for transmitting the main body control board operation status to the RADF.

(7) RTS (MAIN BODY → DF CB)
Send request signal from the main body to the RADF.

(8) DTR (MAIN BODY → DF CB)
Send enable signal from the main body to the RADF.

b. Output signals

(1) M301 DRIVE A, $\overline{A}$, B, $\overline{B}$ (DF CB → M301)
M301 (original conveyance) ON/OFF drive signal



(2) M302 DRIVE 1, 2 (DF CB → M302)
M302 drive signal
M302 rotation direction is controlled by switching the current direction of these two signals.

State	M302 DRIVE 1	M302 DRIVE 2
Forward rotation	H	L
Reverse rotation	L	H
Stop	L	L

(3) CL301 DRIVE (DF CB → CL301)
CL301 (original pick-up) ON/OFF drive signal
[L]: CL301 ON
[H]: CL301 OFF

(4) CL302 DRIVE (DF CB → CL302)
CL302 (original feed) ON/OFF drive signal
[L]: CL302 ON
[H]: CL302 OFF

(5) FM301 DRIVE (DF CB → FM301)
ON/OFF drive signal for FM301
[L]: FM301 ON
[H]: FM301 OFF

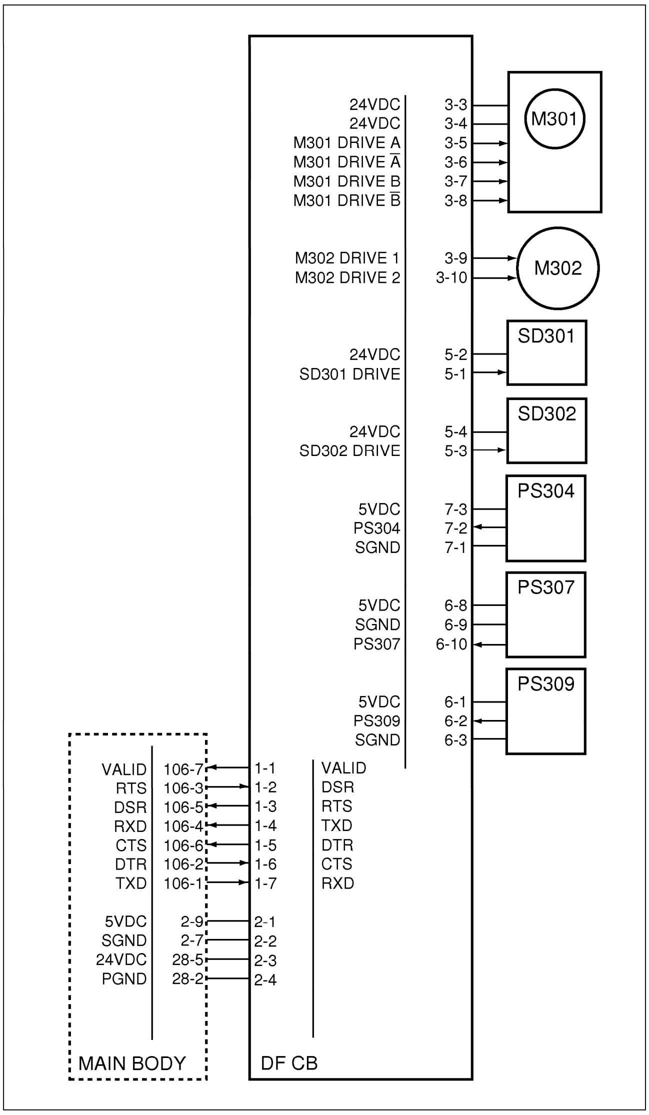
(6) TXD (DF CB → MAIN BODY)
Serial data line for transmitting the RADF operation status to the main body control board.

(7) DTR (DF CB → MAIN BODY)
Send request signal from the RADF to the main body.

(8) RTS (DF CB → MAIN BODY)
Send enable signal from the RADF to the main body.

(9) VALID (DF CB → MAIN BODY)
Image forming start signal

[5] Paper exit/reversal conveyance control


24VDC 3-3
24VDC 3-4
M301 DRIVE A 3-5
M301 DRIVE Ā 3-6
M301 DRIVE B 3-7
M301 DRIVE B̄ 3-8
M301
M302 DRIVE 1 3-9
M302 DRIVE 2 3-10
M302
SD301
24VDC 5-2
SD301 DRIVE 5-1
SD302
24VDC 5-4
SD302 DRIVE 5-3
PS304
5VDC 7-3
PS304 7-2
SGND 7-1
PS307
5VDC 6-8
SGND 6-9
PS307 6-10
PS309
5VDC 6-1
PS309 6-2
SGND 6-3
VALID 106-7 1-1 VALID
RTS 106-3 1-2 DSR
DSR 106-5 1-3 RTS
RXD 106-4 1-4 TXD
CTS 106-6 1-5 DTR
DTR 106-2 1-6 CTS
TXD 106-1 1-7 RXD
5VDC 2-9 2-1
SGND 2-7 2-2
24VDC 28-5 2-3
PGND 28-2 2-4
MAIN BODY
DF CB

Paper path switching in the exit area is carried out by solenoid SD301 (flapper) which operates a flapper (gate). In duplex copy mode, the idler roller at the reversal paper feed is driven by the SD302 (original pressure).
SD301 and SD302 are controlled by the DF CB (RADF control board).

1. Operation

a. Sensor adjustment when the power is ON.

When SW1 (main) is ON, PS309 (original reversal) is adjusted automatically. However, if the RADF open/close cover is open or an original is in the inside of the RADF, there will be no automatic adjustment.

b. Paper exit operation

In single-sided copy mode and when copying the reverse side of a sheet in duplex copy mode, SD301 goes OFF and the flapper is closed. As a result, the original is conveyed to the paper exit section after scanning.

c. Reversal paper exit operation

During copying the first side of a sheet in duplex copy mode, PS308 (original conveyance) detects the leading edge of the original, SD301 goes ON and the flapper opens. This causes the original to be sent to the reversal section after scanning.
M302 (original feed) starts reverse rotation after the specified time from when PS308 goes ON and the drive force is transmitted to the reversal roller.
When the front side scan is finished, M301 and M302 switches to high-speed rotation.
At this time SD302 goes ON after the specified time after scanning and applies pressure to the pressure pulley. As a result, the original which has been conveyed to the reversal section is caught between the reversal roller and pressure pulley, and conveyed to the inside of the reversal section.

d. Reversal feed operation

When PS309 detects the trailing edge of the original and goes OFF, both the M301 and M302 go OFF after the specified time, and conveyance operation of the original is stopped.
After a predetermined OFF interval M302 starts forward rotation and feeds the original from the reversal section to the conveyance roller side. At this time, PS309 again goes ON and M302 goes OFF after the specified time. Furthermore, SD302 turns OFF after the specified time.

e. Pre-feed operation of next original when reading back side of original

At the same time as when SD302 goes OFF, M301 and M302 start forward rotation after the specified time, and next original pre-feed is carried out.

2. Signals

a. Input signals

(1) PS304 (PS304 → DF CB)
M301 encoder surface slit detection signal
[L]: Slit is not detected
[H]: Slit is detected

(2) PS307 (PS307 → DF CB)
Original detection signal at the paper exit section
[L]: Original is detected
[H]: Original is not detected

(3) PS309 (PS309 → DF CB)
Original detection signal at the reversal paper exit section
[L]: Original is detected
[H]: Original is not detected

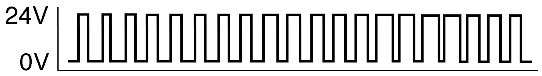
(4) TXD (MAIN BODY → DF CB)
Serial data line for transmitting the main body control board operation status to the RADF

(5) RTS (MAIN BODY → DF CB)
Send request signal from the main body to the RADF

(6) DTR (MAIN BODY → DF CB)
Send enable signal from the main body to the RADF

b. Output signals

(1) M301 DRIVE A, $\overline{A}$, B, $\overline{B}$ (DF CB → M301)
M301 (original conveyance) ON/OFF drive signal



(2) M302 DRIVE 1, 2 (DF CB → M302)
M302 drive signal
M302 rotation direction is controlled by switching the current direction of these two signals.

State	M302 DRIVE 1	M302 DRIVE 2
Forward rotation	H	L
Reverse rotation	L	H
Stop	L	L

(3) SD301 DRIVE (DF CB → SD301)
SD301 (flapper) ON/OFF drive signal
[L]: SD301 ON
[H]: SD301 OFF

(4) SD302 DRIVE (DF CB → SD302)
SD302 (original pressure) ON/OFF drive signal
[L]: SD302 ON
[H]: SD302 OFF

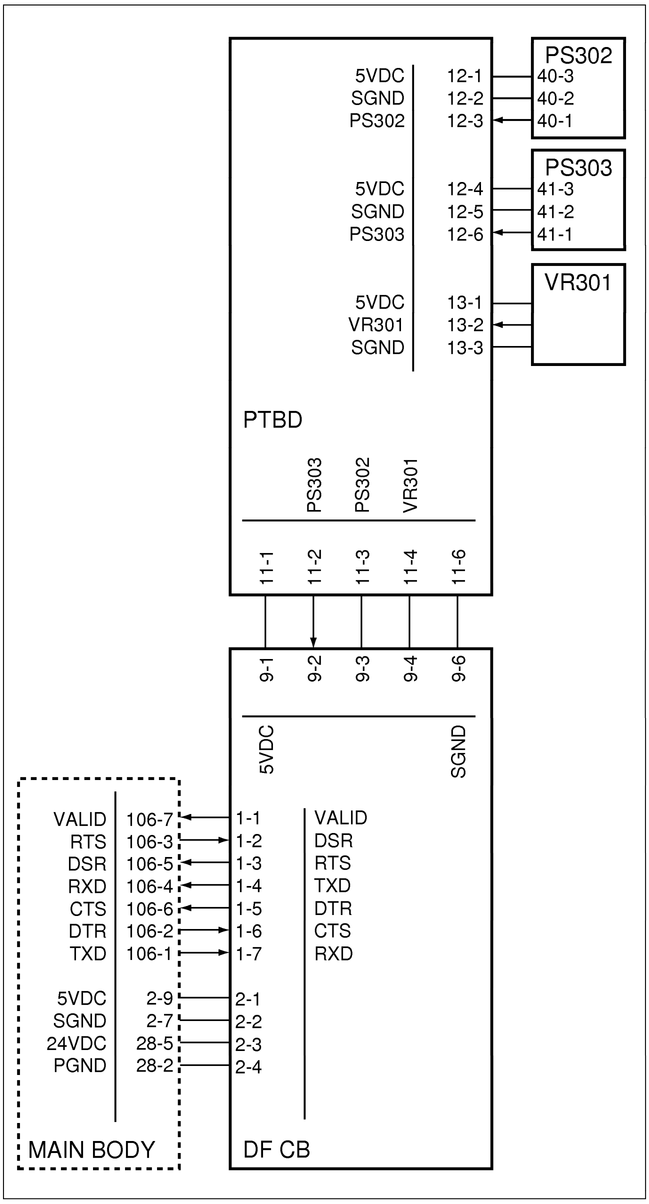
(5) TXD (DF CB → MAIN BODY)
Serial data line for transmitting the RADF operation status to the main body control board

(6) DTR (DF CB → MAIN BODY)
Send request signal from the RADF to the main body

(7) RTS (DF CB → MAIN BODY)
Send enable signal the RADF to the main body

(8) VALID (DF CB → MAIN BODY)
Image forming start signal

[6] Original size detection control


PS302
5VDC
SGND
PS302
12-1
12-2
12-3
40-3
40-2
40-1
PS303
5VDC
SGND
PS303
12-4
12-5
12-6
41-3
41-2
41-1
VR301
5VDC
VR301
SGND
13-1
13-2
13-3
PTBD
PS303
PS302
VR301
11-1
11-2
11-3
11-4
11-6
9-1
9-2
9-3
9-4
9-6
5VDC
SGND
VALID
RTS
DSR
RXD
CTS
DTR
TXD
106-7
106-3
106-5
106-4
106-6
106-2
106-1
1-1
1-2
1-3
1-4
1-5
1-6
1-7
VALID
DSR
RTS
TXD
DTR
CTS
RXD
5VDC
SGND
24VDC
PGND
2-9
2-7
28-5
28-2
2-1
2-2
2-3
2-4
MAIN BODY
DF CB

The size of the original placed in the paper feed tray is detected by PS302 (original size detect 1), PS303 (original size detect 2), and VR301 (original size detect).
PS302, PS303, and VR301 are controlled by the DF CB (RADF control board) via the PTBD (Paper tray board).
Inside the DF CB is a non-volatile memory for recording the timing data and original size detection threshold values.

1. Operation

a. Normal copy mode

The DF CB detects the original size from a combination of the following signals.

(1) Detection of size in the direction of the drum shaft (width)
The guide plate is connected to the VR301 and the resistance value differs according to the position of the guide plate. Thus, it is possible to detect the width measurements of the original.

(2) Detection of size in the direction of original feed
There is detection of the length measurements of the original according to a combination of ON/OFF of PS302 and PS303.

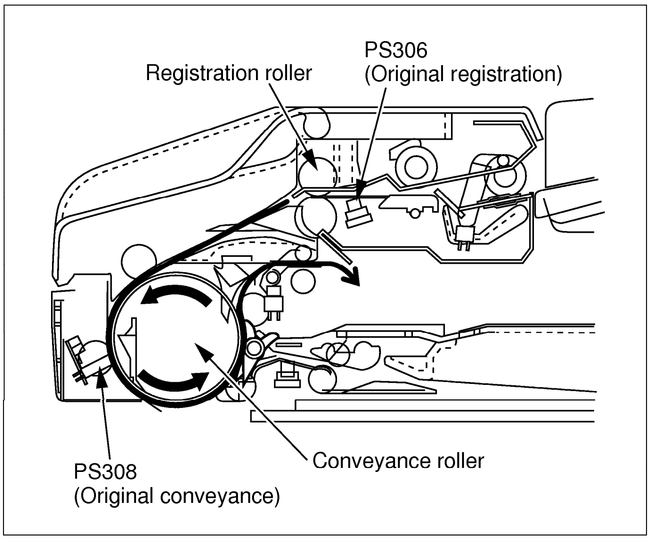
b. original size detection in the mixed original copy mode.

Judgment of size in the mixed original copy mode is carried out under the following conditions.

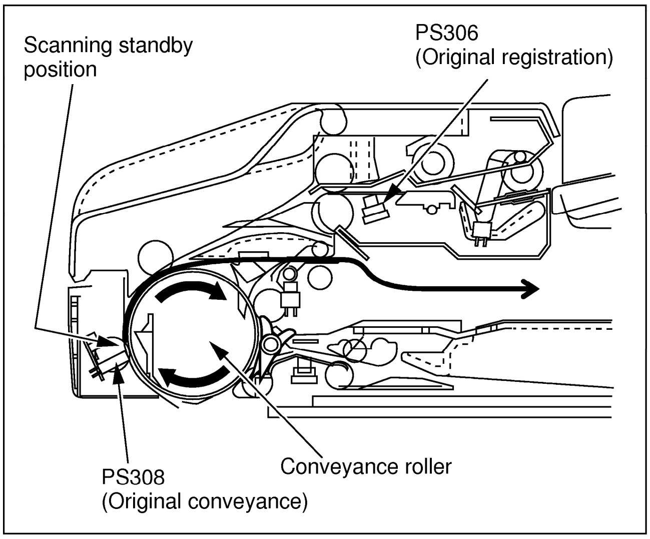
(1) Size detection in the direction of drum shaft (width).
There is judgment of the width measurements of the largest original of the mixed originals by means of the guide plate position.

(2) Size detection in the direction of the original feed.
There is judgment of the length measurements of the originals according to the time when PS306 (original registration) goes ON after feeding of the original from the registration roller.

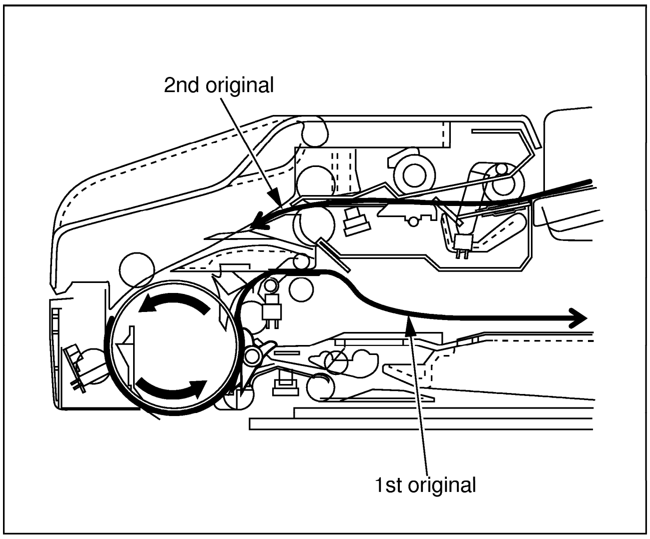
(3) Size detection operation in the direction of original feed.
When original pre-feed is started with the registration roller, M301 (original conveyance) rotates forward and the original is conveyed to the paper exit section. The forward rotation of the M301 is continued until PS306 detects the trailing edge of the original and goes OFF. At this time, depending on the ON time of PS306, there is detection of the size of the original feed direction.


Registration roller
PS306
(Original registration)
PS308
(Original conveyance)
Conveyance roller

M301 rotates in the reversal direction after the specified time from PS306 goes OFF and returns the leading edge of the original that has been conveyed to the paper exit section to the scanning standby position. The trailing edge of the original which has been returned is conveyed to the exit section due to the configuration of the conveyance guide plate. The reversal rotation of M301 stops after the specified time from PS308 (original conveyance) detects the leading edge of the original and goes ON.



Following this, there is the same reading as in the normal mode (scanning operation).



The original size detection operation with the 2nd original and subsequent originals has a different start timing for the single side mode and double side mode.

Single side mode: At time of starting scanning operation of former original.

Double side mode: At time of starting scanning operation of former original back side.

MC-Service

c. List of the possible mixing of sizes.

(☐ : Same size ○ : Same series ◎ : Different series × : Mixing not possible – : Setting not possible.)

(1) AB series

		Standard original (maximum original size that is detected with the guide plate).							
		A3	A4	B4	B5	A4R	A5	B5R	A5R
Other originals	A3	☐	○	–	–	–	–	–	–
	A4	○	☐	–	–	–	–	–	–
	B4	◎	◎	☐	○	–	–	–	–
	B5	◎	◎	○	☐	–	–	–	–
	A4R	◎	◎	◎	◎	☐	○	–	–
	A5	◎	◎	◎	◎	○	☐	–	–
	B5R	×	×	◎	◎	◎	◎	☐	–
	A5R	×	×	×	×	×	×	×	☐

(2) Inch series

		Standard original (maximum original size that is detected with the guide plate).					
		11×17	8.5×11	8.5×14	8.5×11R	8.5×5.5	8.5×5.5R
Other originals	11×17	☐	○	–	–	–	–
	8.5×11	○	☐	–	–	–	–
	8.5×14	◎	◎	☐	○	○	–
	8.5×11R	◎	◎	○	☐	○	–
	8.5×5.5	◎	◎	○	○	☐	–
	8.5×5.5R	×	×	×	×	×	☐

2. Signals

a. Input signals

(1) PS302 (PS302 → PTBD → DF CB)
Original length detection signal
[L]: Original is detected
[H]: Original is not detected

(2) PS303 (PS303 → PTBD → DF CB)
Original length detection signal
[L]: Original is detected
[H]: Original is not detected

(3) VR301 (VR301 → PTBD → DF CB)
Original width detection signal

(4) TXD (MAIN BODY → DF CB)
Serial data line for transmitting the main body control board operation status to the RADF

(5) RTS (MAIN BODY → DF CB)
Send request signal from the main body to the RADF.

(6) DTR (MAIN BODY → DF CB)
Send enable signal from the main body to the RADF.

b. Output signals

(1) TXD (DF CB → MAIN BODY)
Serial data line for transmitting the RADF operation status to the main body control board.

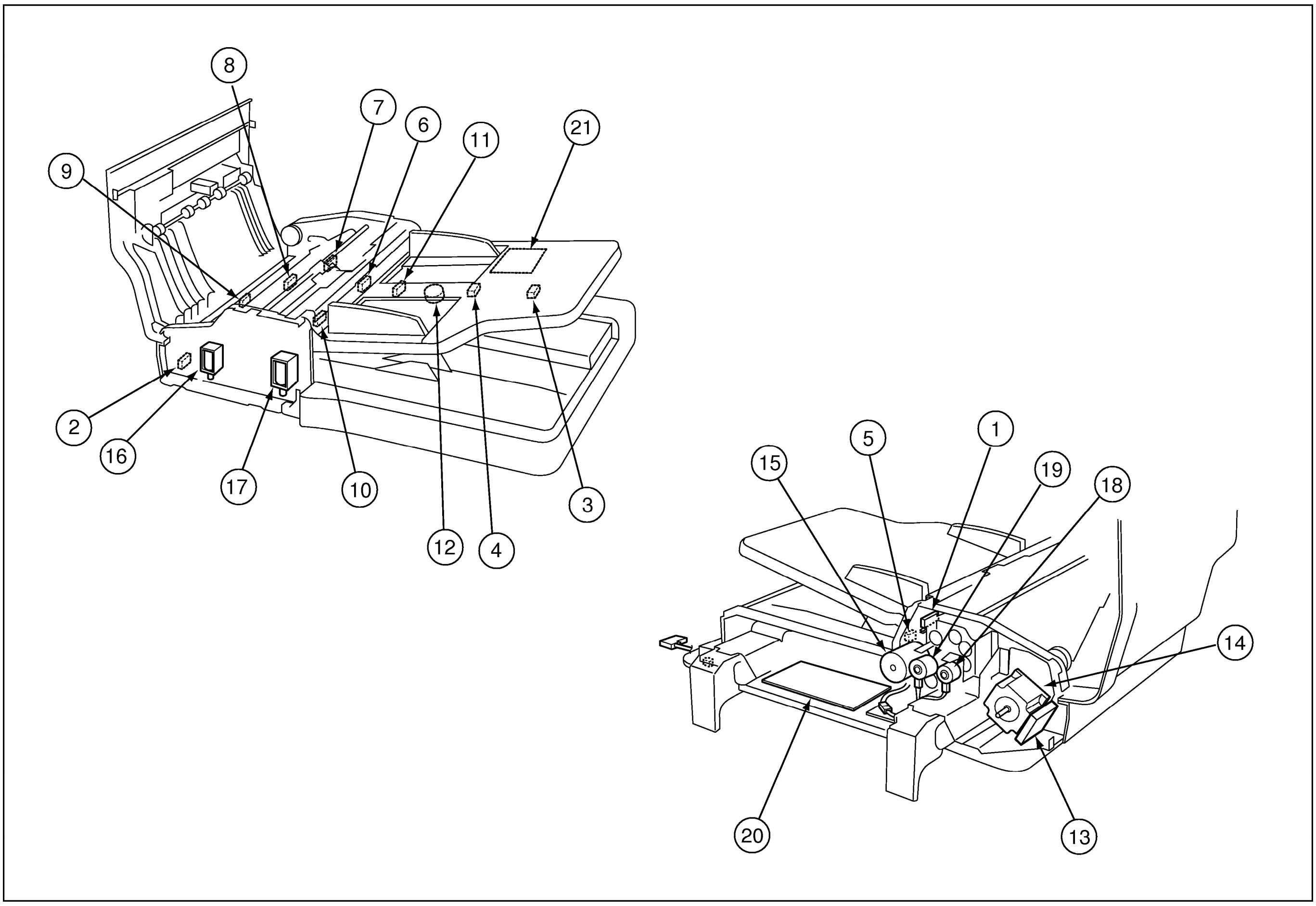
(2) DTR (DF CB → MAIN BODY)
Send request signal from the RADF to the main body.

(3) RTS (DF CB → MAIN BODY)
Send enable signal from the RADF to the main body.

2

DIAGRAMS

DF-312 ELECTRICAL PARTS LAYOUT DRAWING



1. Switches and Sensors

①	MS301	Cover open/close MS
②	PS301	RADF open/close PS
③	PS302	Original size detection sensor 1
④	PS303	Original size detection sensor 2
⑤	PS304	Encorder sensor
⑥	PS305	No original detection sensor
⑦	PS306	Original registration sensor
⑧	PS307	Original exit sensor
⑨	PS308	Original feed sensor
⑩	PS309	Original reversal sensor
⑪	PS310	Final original detection sensor
⑫	VR301	Original size detection VR

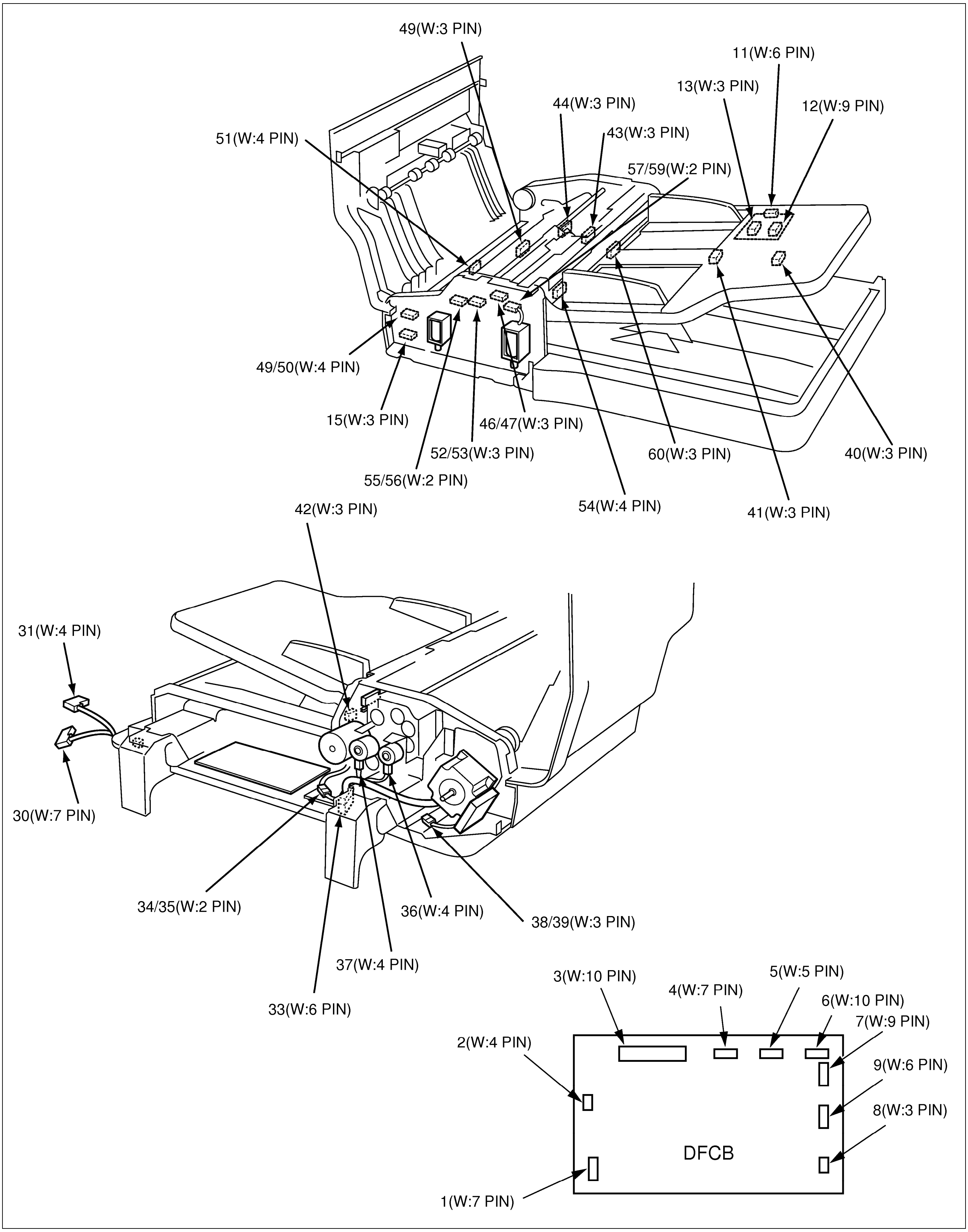
2. Loads

⑬	FM301	ADF Fan
⑭	M301	Original conveyance motor
⑮	M302	Original feed motor
⑯	SD301	Flapper solenoid
⑰	SD302	Original pressure solenoid
⑱	CL301	Original pick-up clutch
⑲	CL302	Original feed clutch

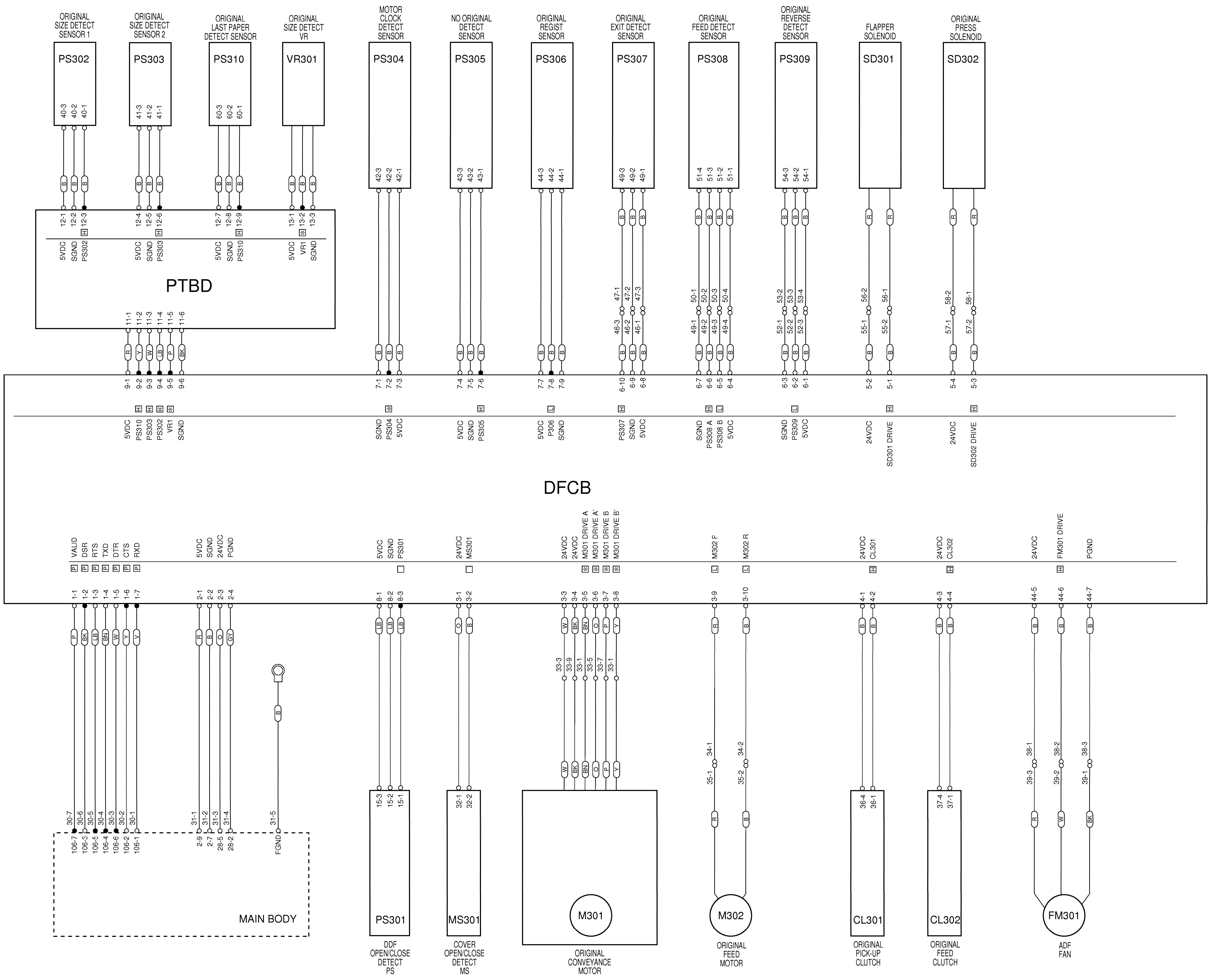
3. PCBs and Others

⑳	DFCB	RADF control board
㉑	PTBD	Paper tray board

DF-312 CONNECTOR LAYOUT DRAWING


49(W:3 PIN)
11(W:6 PIN)
13(W:3 PIN)
44(W:3 PIN)
12(W:9 PIN)
43(W:3 PIN)
51(W:4 PIN)
57/59(W:2 PIN)
49/50(W:4 PIN)
15(W:3 PIN)
46/47(W:3 PIN)
52/53(W:3 PIN)
60(W:3 PIN)
40(W:3 PIN)
55/56(W:2 PIN)
54(W:4 PIN)
41(W:3 PIN)
42(W:3 PIN)
31(W:4 PIN)
30(W:7 PIN)
34/35(W:2 PIN)
36(W:4 PIN)
38/39(W:3 PIN)
37(W:4 PIN)
33(W:6 PIN)
3(W:10 PIN)
4(W:7 PIN)
5(W:5 PIN)
6(W:10 PIN)
7(W:9 PIN)
2(W:4 PIN)
9(W:6 PIN)
8(W:3 PIN)
DFCB
1(W:7 PIN)

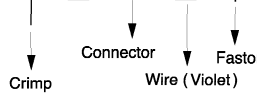
DF-312 OVERALL WIRING DIAGRAM


ORIGINAL SIZE DETECT SENSOR 1
PS302
ORIGINAL SIZE DETECT SENSOR 2
PS303
ORIGINAL LAST PAPER DETECT SENSOR
PS310
ORIGINAL SIZE DETECT VR
VR301
MOTOR CLOCK DETECT SENSOR
PS304
NO ORIGINAL DETECT SENSOR
PS305
ORIGINAL REGIST SENSOR
PS306
ORIGINAL EXIT DETECT SENSOR
PS307
ORIGINAL FEED DETECT SENSOR
PS308
ORIGINAL REVERSE DETECT SENSOR
PS309
FLAPPER SOLENOID
SD301
ORIGINAL PRESS SOLENOID
SD302
PTBD
DFCB
MAIN BODY
PS301
DDF OPEN/CLOSE DETECT PS
MS301
COVER OPEN/CLOSE DETECT MS
M301
ORIGINAL CONVEYANCE MOTOR
M302
ORIGINAL FEED MOTOR
CL301
ORIGINAL PICK-UP CLUTCH
CL302
ORIGINAL FEED CLUTCH
FM301
ADF FAN
5VDC
SGND
24VDC
PGND
VALID
DSR
RTS
TXD
DTR
CTS
RXD
M301 DRIVE A
M301 DRIVE A'
M301 DRIVE B
M301 DRIVE B'
M302 F
M302 R
SD301 DRIVE
SD302 DRIVE
FM301 DRIVE
FGND

[How to see the diagram]

1. The signals shown reflect levels present under normal idleing conditions with the main switch turned ON.
2. Wiring symbols in the figure are as follows.

(1) [Symbol]


V
50-1
V
Connector
Faston
Crimp
Wire (Violet)

(2) [Color code]

BN - Brown
B - Blue
R - Red
V - Violet
O - Orange
GY- Gray
Y - Yellow
W - White
GN - Green
BK- Black
LB - Light blue
P - Pink

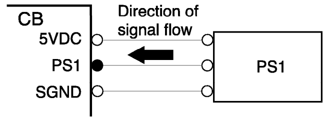
Example: (Y/GN) represents green yellow striped pattern.

(3) (RC) is ribbon cable.

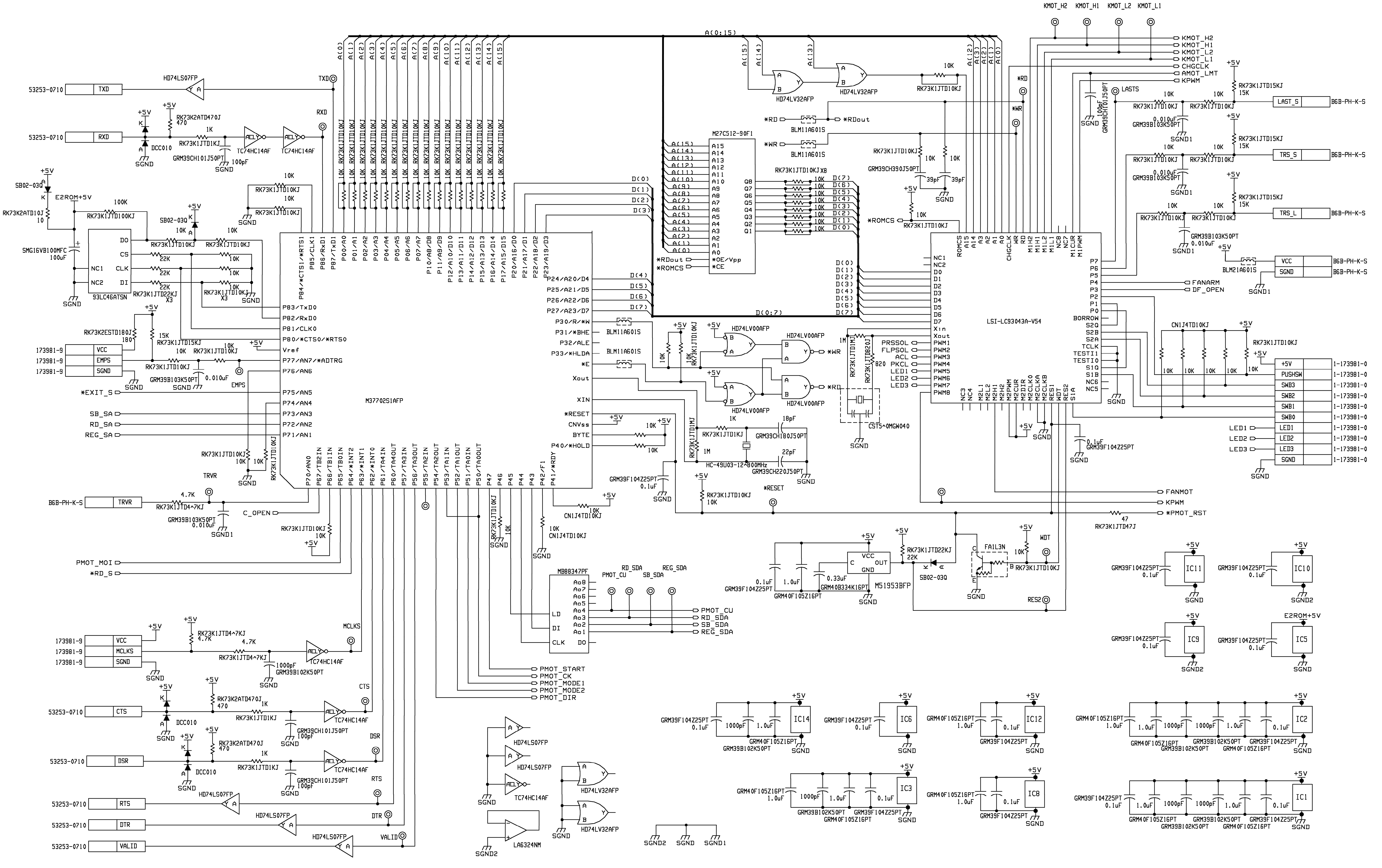
(4) Signal flow

The solid black circle (●) among the connector symbols (○) indicates the direction of signal flow.

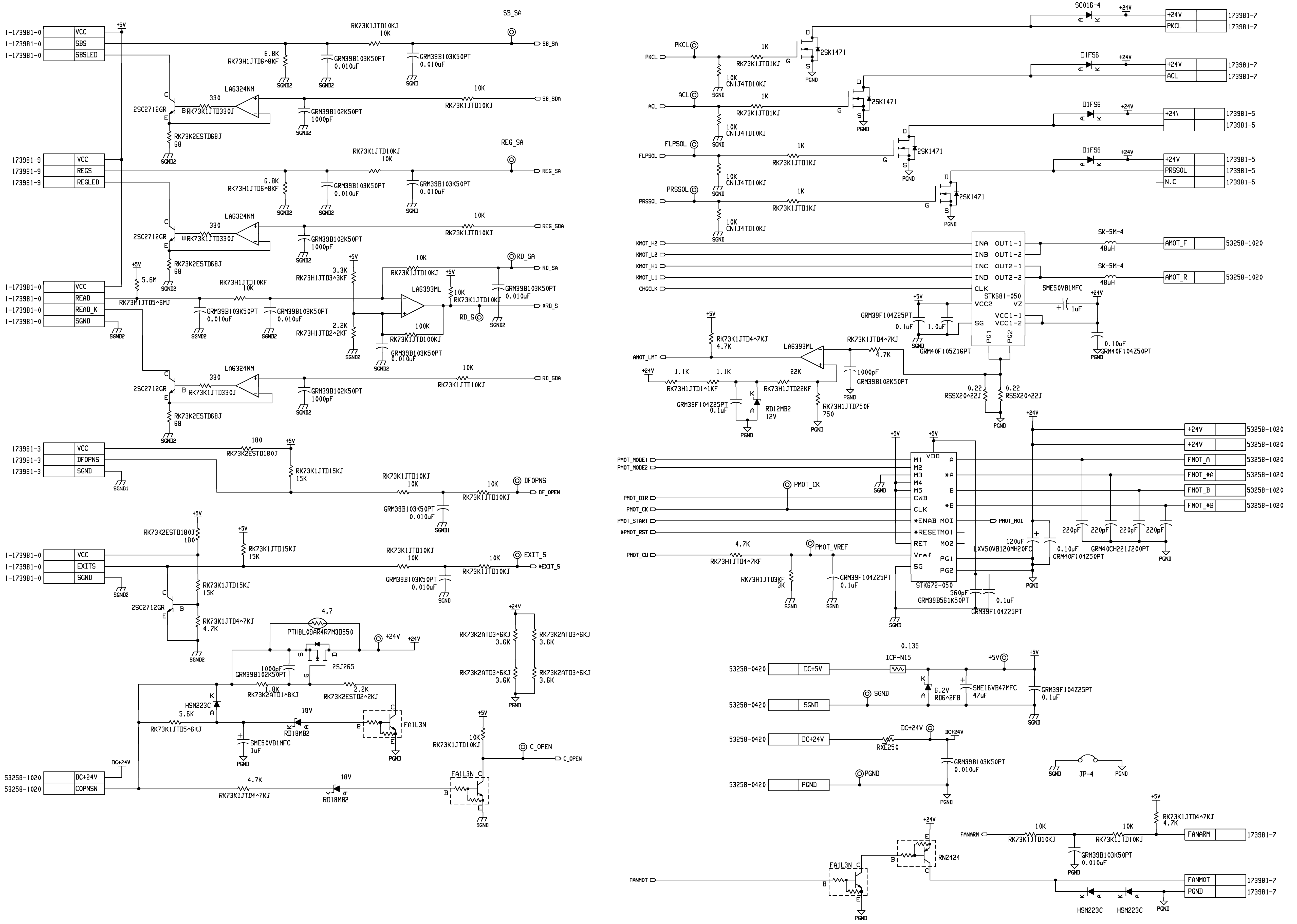
Example)


CB
Direction of signal flow
5VDC
PS1
SGND
PS1

DF CONTROL BOARD CIRCUIT DIAGRAM (1/2)

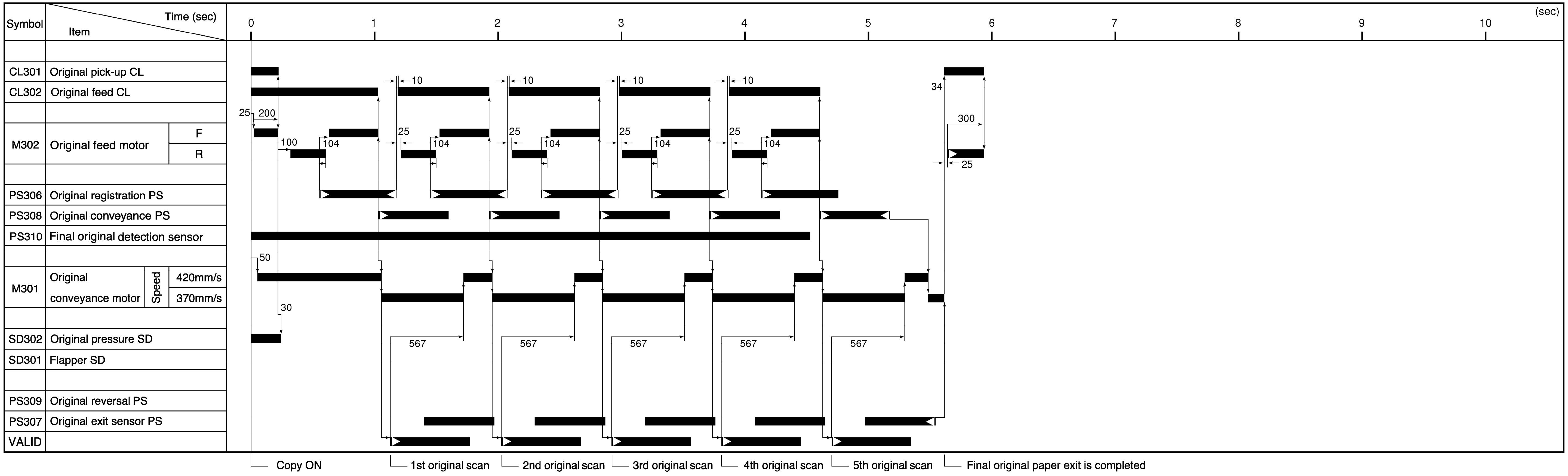

KMOT_H2
KMOT_H1
KMOT_L2
KMOT_L1
CHGCLK
AMOT_LMT
KPWM
A(0:15)
D(0:7)
53253-0710
TXD
RXD
CTS
DSR
RTS
DTR
VALID
HD74LS07FP
TC74HC14AF
HD74LV32AFP
HD74LV00AFP
DCC010
SB02-03Q
E2ROM+5V
93LC46ATSN
SMG16VB100MFC
100uF
M37702S1AFP
M27C512-90F1
LSI-LC93043A-V54
MB88347PF
M51953BFP
LA6324NM
FA1L3N
CST5^0MGW040
HC-49U03-12^800MHz
BLM11A601S
BLM21A601S
RK73K1JTD10KJ
RK73K1JTD15KJ
RK73K1JTD22KJ
RK73K2ATD470J
GRM39B103K50PT
GRM39F104Z25PT
GRM40F105Z16PT
GRM39B102K50PT
GRM39CH101J50PT
GRM39CH390J50PT
GRM39CH180J50PT
GRM39CH220J50PT
GRM40B334K16PT
CN1J4TD10KJ
173981-9
VCC
EMPS
SGND
MCLKS
*EXIT_S
SB_SA
RD_SA
REG_SA
TRVR
B6B-PH-K-S
C_OPEN
PMOT_MOI
*RD_S
PMOT_START
PMOT_CK
PMOT_MODE1
PMOT_MODE2
PMOT_DIR
PMOT_CU
RD_SDA
SB_SDA
REG_SDA
*RD
*WR
*RDout
*ROMCS
*RESET
LASTS
LAST_S
TRS_S
TRS_L
FANARM
DF_OPEN
FANMOT
*PMOT_RST
PUSHSW
SWB3
SWB2
SWB1
SWB0
LED1
LED2
LED3
1-173981-0
WDT
RES2
IC1
IC2
IC3
IC5
IC6
IC8
IC9
IC10
IC11
IC12
IC14
SGND
SGND1
SGND2
+5V

DF CONTROL BOARD CIRCUIT DIAGRAM (2/2)

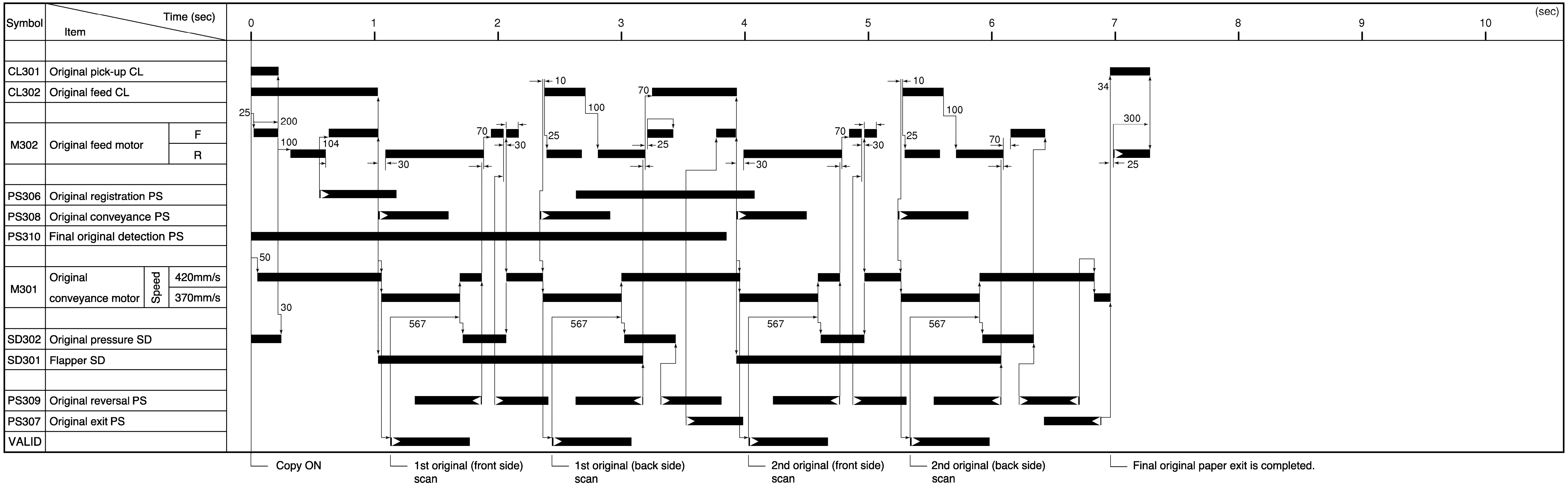


1-173981-0
VCC
SBS
SBSLED
+5V
RK73K1JTD10KJ
10K
SB_SA
6.8K
RK73H1JTD6^8KF
GRM39B103K50PT
0.010uF
SGND2
LA6324NM
330
2SC2712GR
RK73K1JTD330J
RK73K2ESTD68J
68
GRM39B102K50PT
1000pF
SB_SDA
173981-9
REGS
REGLED
REG_SA
REG_SDA
RD_SA
RD_S
*RD_S
READ
READ_K
SGND
5.6M
RK73H1JTD5^6MJ
RK73H1JTD10KF
3.3K
RK73H1JTD3^3KF
2.2K
RK73H1JTD2^2KF
LA6393ML
100K
RK73K1JTD100KJ
RD_SDA
173981-3
DFOPNS
180
RK73K2ESTD180J
RK73K1JTD15KJ
15K
DF_OPEN
SGND1
EXITS
EXIT_S
*EXIT_S
RK73K1JTD4^7KJ
4.7K
4.7
PTH8L09AR4R7M3B550
+24V
2SJ265
1.8K
RK73K2ATD1^8KJ
RK73K2ESTD2^2KJ
HSM223C
5.6K
RK73K1JTD5^6KJ
18V
RD18MB2
FA1L3N
SME50VB1MFC
1uF
PGND
C_OPEN
FA1L3N_C
53258-1020
DC+24V
COPNSW
RK73K2ATD3^6KJ
3.6K
PKCL
1K
RK73K1JTD1KJ
CN1J4TD10KJ
2SK1471
ACL
FLPSOL
PRSSOL
SC016-4
D1FS6
173981-7
173981-5
+24\
N.C
KMOT_H2
KMOT_L2
KMOT_H1
KMOT_L1
CHGCLK
INA
INB
INC
IND
CLK
OUT1-1
OUT1-2
OUT2-1
OUT2-2
STK681-050
VCC2
VZ
VCC1-1
VCC1-2
SG
PG1
PG2
SK-5M-4
48uH
AMOT_F
AMOT_R
53258-1020
SME50VB1MFC
GRM39F104Z25PT
0.1uF
1.0uF
GRM40F105Z16PT
0.10uF
GRM40F104Z50PT
AMOT_LMT
1.1K
RK73H1JTD1^1KF
22K
RK73H1JTD22KF
RD12MB2
12V
RK73H1JTD750F
750
0.22
RSSX20^22J
PMOT_MODE1
PMOT_MODE2
PMOT_DIR
PMOT_CK
PMOT_START
*PMOT_RST
PMOT_CU
PMOT_VREF
RK73H1JTD4^7KF
RK73H1JTD3KF
3K
VDD
M1
M2
M3
M4
M5
CWB
*ENAB
*RESET
RET
Vref
MOI
MO1
MO2
A
*A
B
*B
PG1
PG2
STK672-050
PMOT_MOI
120uF
LXV50VB120MH20FC
220pF
GRM40CH221J200PT
560pF
GRM39B561K50PT
FMOT_A
FMOT_*A
FMOT_B
FMOT_*B
53258-0420
DC+5V
0.135
ICP-N15
6.2V
RD6^2FB
SME16VB47MFC
47uF
RXE250
JP-4
FANARM
RN2424
FANMOT

DF-312 TIMING CHART (A4, ONE SIDE ORIGINALS, FIVE SHEETS)



DF-312 TIMING CHART (A4, DUAL-SIDED ORIGINALS, TWO SHEETS)



Konica

FS-106

SERVICE HANDBOOK

Jan. 2000
Ver. 2.0

KONICA CORPORATION
TECHNOLOGY SUPPORT CENTER
TOKYO JAPAN

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This section covers the structure, functions, operation and method of disassembling and assembling the machine.
Observe the following precautions when performing disassembly and assembly work.

1. Be sure to unplug the power cord before working on the machine.
2. Perform all reassembly work by reversing the order in which the component was disassembled, unless otherwise specified.
3. Do not lose small parts (screws, etc.) or insert them in the wrong place.
4. Install all parts completely before operating the machine.
5. Do not loosen the screws indicated as disallowed for removal.

1

FS-106

FS-106 PRODUCT SPECIFICATIONS

1. Type

Type: Off-set sorting and stapling equipment with printer outlet function.

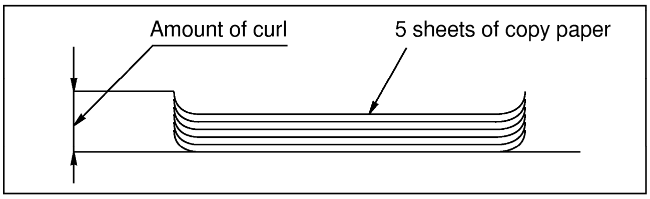
2. Functions

Types of paper: Same as the main body.
Paper size: A3R, B4R, F4R, A4R, A4, B5, B5R, A5R, B6R; however B6R is not possible in off-set mode; B5R, A5R and B6R are not possible in staple mode.

Paper stacking capacity:
Sub-tray exit mode: Maximum 200 sheets
Non-staple/Group/ Off-set mode: Maximum 1,500 sheets (B4R/F4R/A3R)
Maximum 2,000 sheets (B5R/B5/A4R/A4)
Maximum 500 sheets (B6R/A5R)
Staple mode: Maximum 1,000 sheets

Number of original pages	Other than A3R, 11X17R		A3R, 11x17R	
	Staple in 2 places	Staple in 1 place	Staple in 2 places	Staple in 1 place
2 to 9	100 stacks	100 stacks	50 stacks	50 stacks
10 to 20	50 stacks	50 stacks	50 stacks	50 stacks
21 to 30	30 stacks	30 stacks	30 stacks	30 stacks
31 to 40	25 stacks	25 stacks	25 stacks	25 stacks
41 to 50	20 stacks	20 stacks	20 stacks	20 stacks

Paper curling: Max. 10 mm

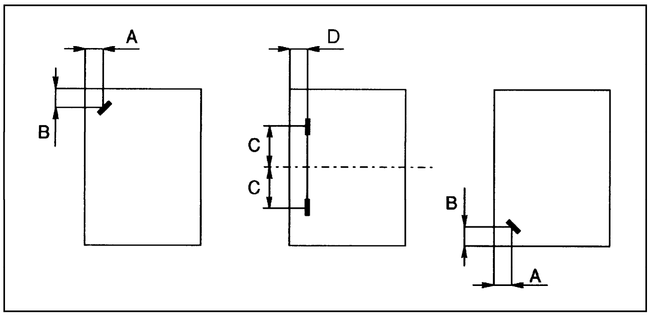


Amount of sort off-setting: 30 mm (when off-setting/grouping)
Tray: Main tray
Sub-tray

3. Stapler Kit

Number of pages which may be stapled: 50 sheets maximum (80 g/m^2 high-quality paper, 5 mm and below)

Staple position: A = 8.8 mm (±3 mm adjustment possible)
B = 8.8 mm (±3 mm adjustment possible)
C = 89.1 mm (±3 mm adjustment possible)
D = 8.0 mm (±3 mm adjustment possible)

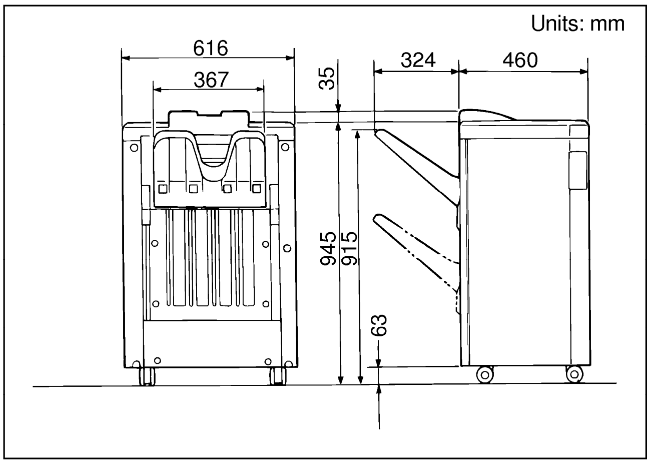


Staple capacity: 5,000 staples/cartridge
(Same as FS-103/FS-103A/FS-106)

4. Machine Data

Power source: 24 V/5 VDC (supplied from the main body).
Maximum power consumption: Max. 100 VA (FS-106 only)
Weight: Approximately 50 kg

External dimensions:



5. Maintenance

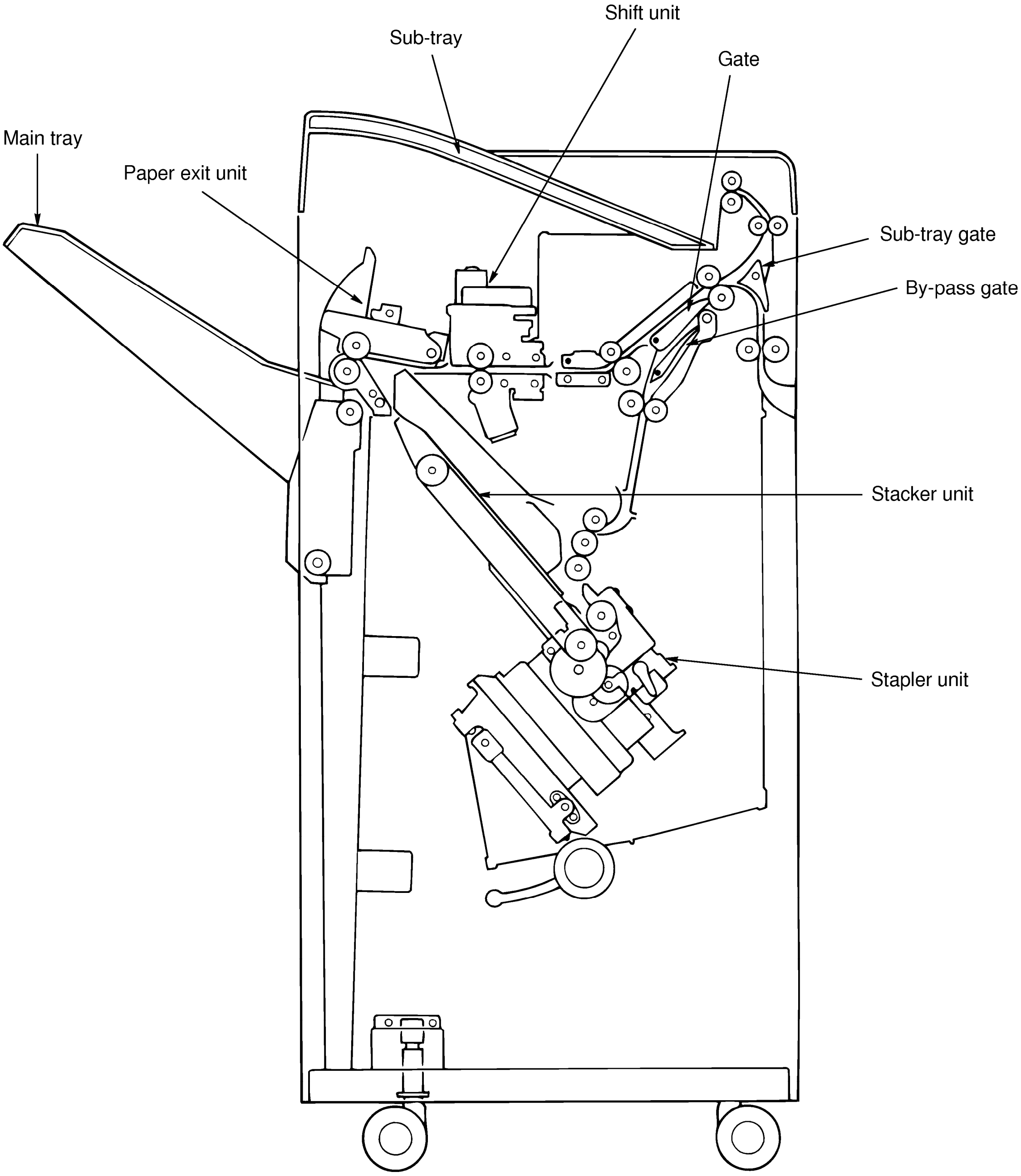
Maintenance: Same as the main body
Service life: Same as the main body

6. Machine Operating Environment

Temperature: 10 to 30°C
Humidity: 10 to 80% RH

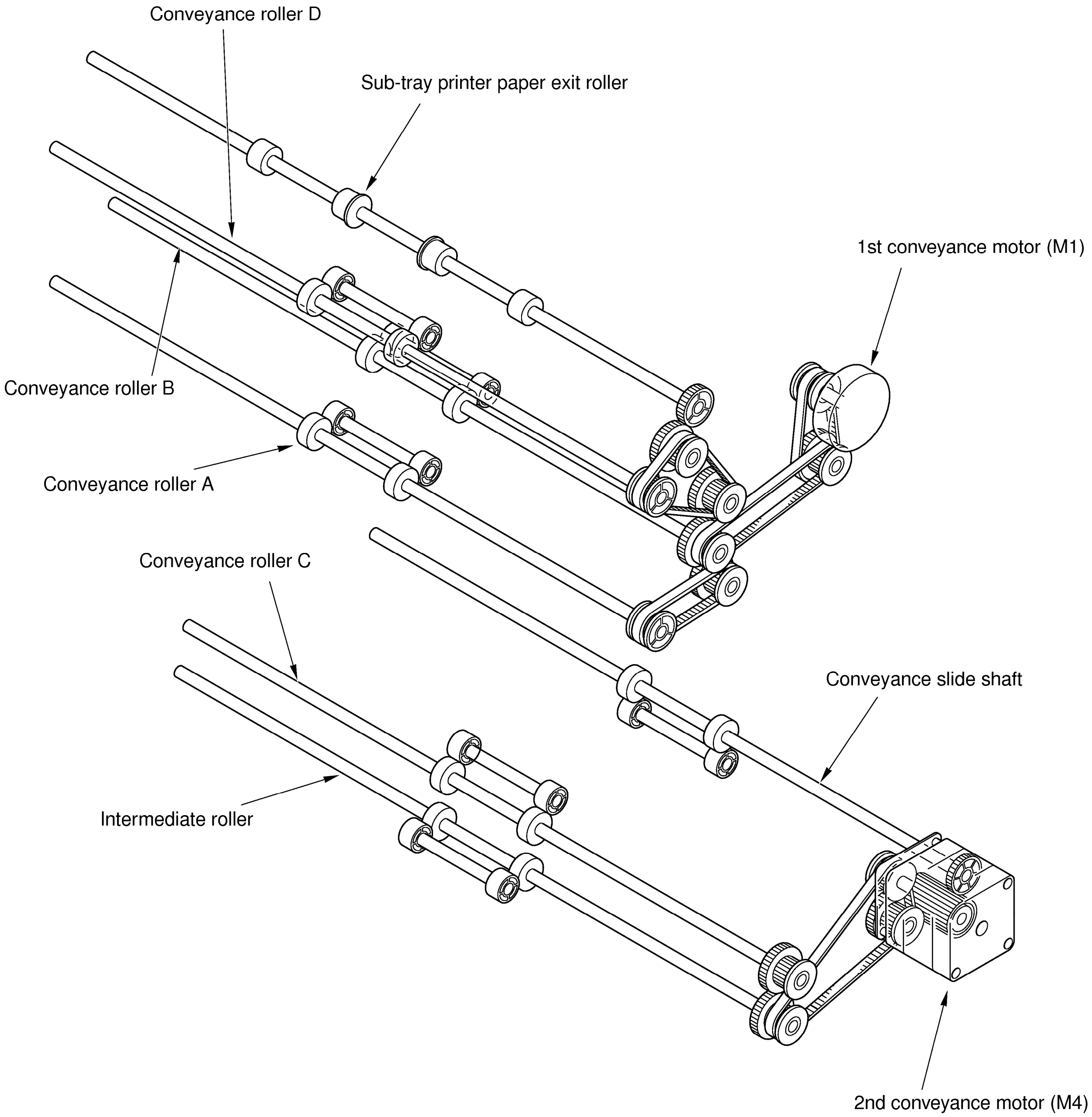
These specifications are subject to change without notice.

CENTER CROSS SECTION

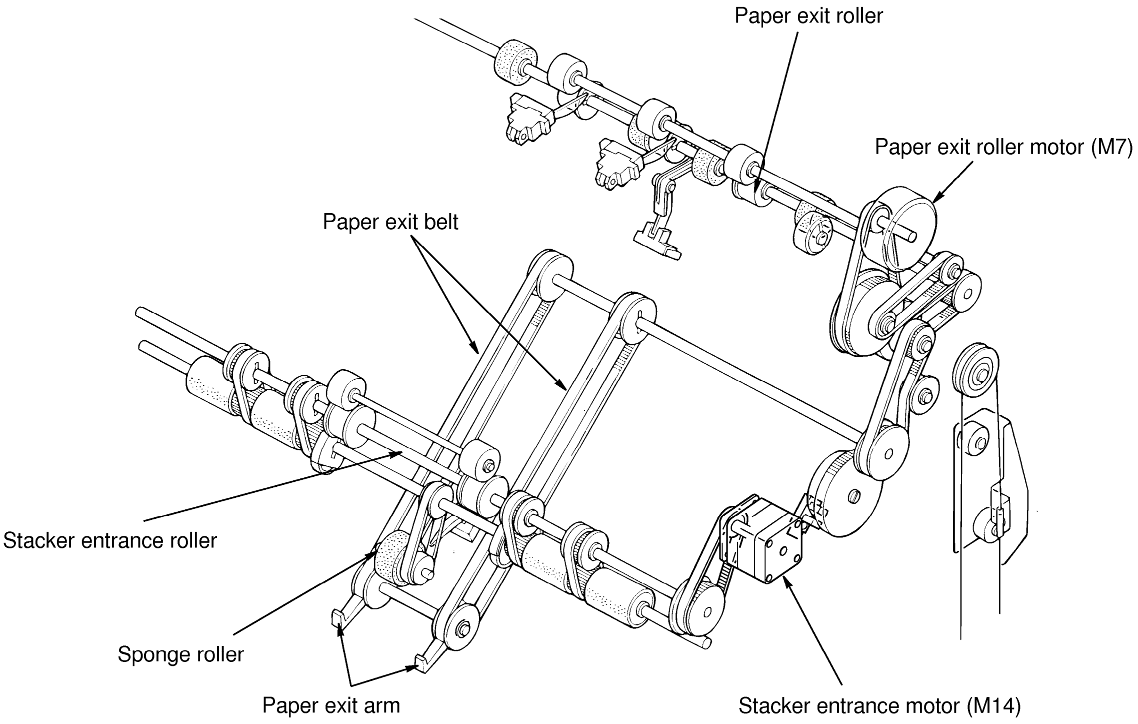

Shift unit
Sub-tray
Gate
Main tray
Paper exit unit
Sub-tray gate
By-pass gate
Stacker unit
Stapler unit

DRIVE SYSTEM DIAGRAM

[1] Paper Conveyance Drive


Conveyance roller D
Sub-tray printer paper exit roller
1st conveyance motor (M1)
Conveyance roller B
Conveyance roller A
Conveyance roller C
Conveyance slide shaft
Intermediate roller
2nd conveyance motor (M4)

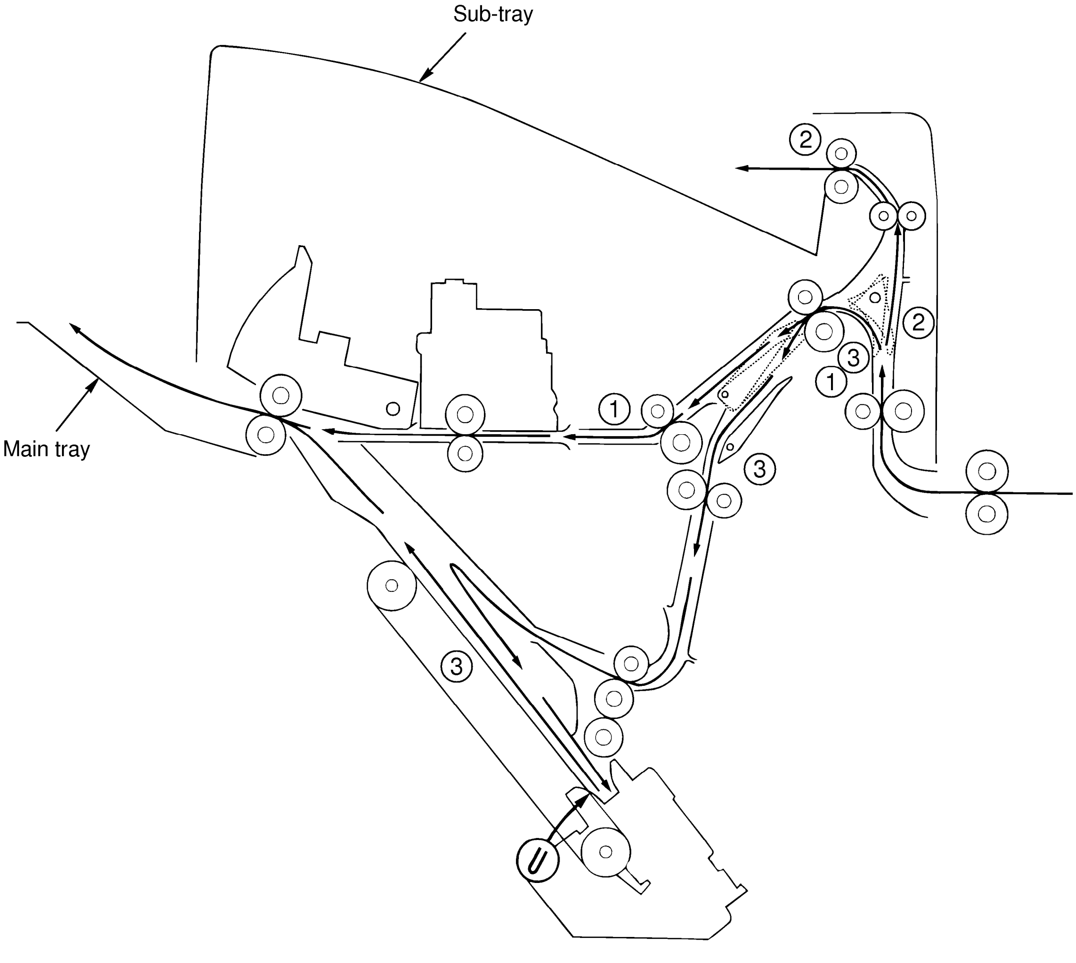
[2] Stacker Drive


Paper exit roller
Paper exit roller motor (M7)
Paper exit belt
Stacker entrance roller
Sponge roller
Paper exit arm
Stacker entrance motor (M14)

PAPER CONVEYANCE PATH

[1] Paper Conveyance Path

The FNS (Finisher) has three paper conveyance paths as shown in the diagram below.
Face up and face down operations are performed in the reversal paper exit section of the main body.

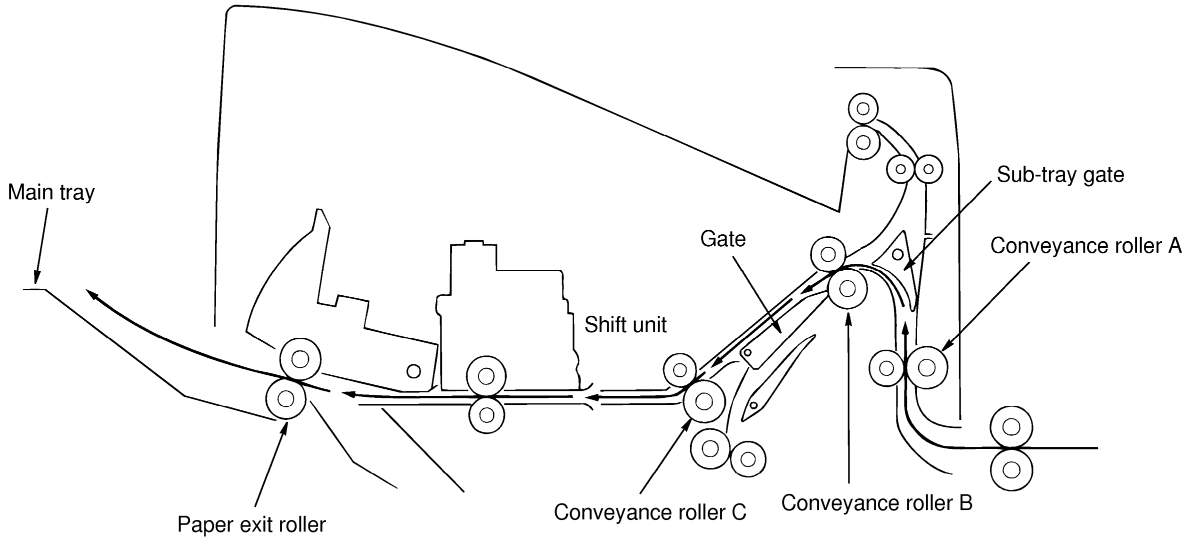


Finishing	Paper conveyance paths
Non-Sort mode	①
Sort/Group mode	①
Sub-tray mode	②
Staple mode	③

[2] Non-Sort mode

Exit to main tray

A paper exited from the main body is conveyed and exited to the main tray.


Main tray
Gate
Sub-tray gate
Conveyance roller A
Shift unit
Paper exit roller
Conveyance roller C
Conveyance roller B

[3] Sort/Group mode

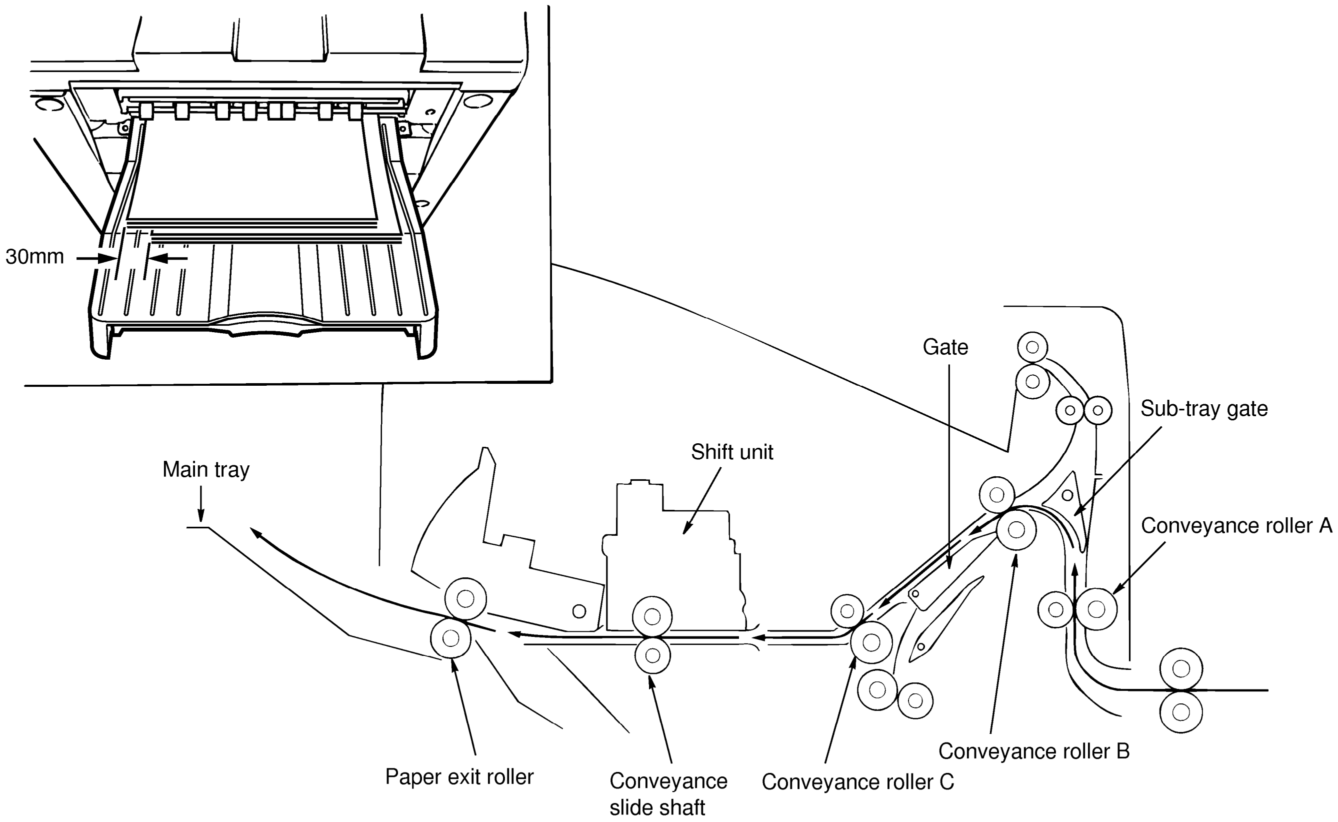
Exit to main tray

Paper exited from the main body is conveyed and exited to the main tray. This mode has an off-set function that allows each page of the even-numbered sets to be exited with the paper shifted 30mm to the rear.

off-set function

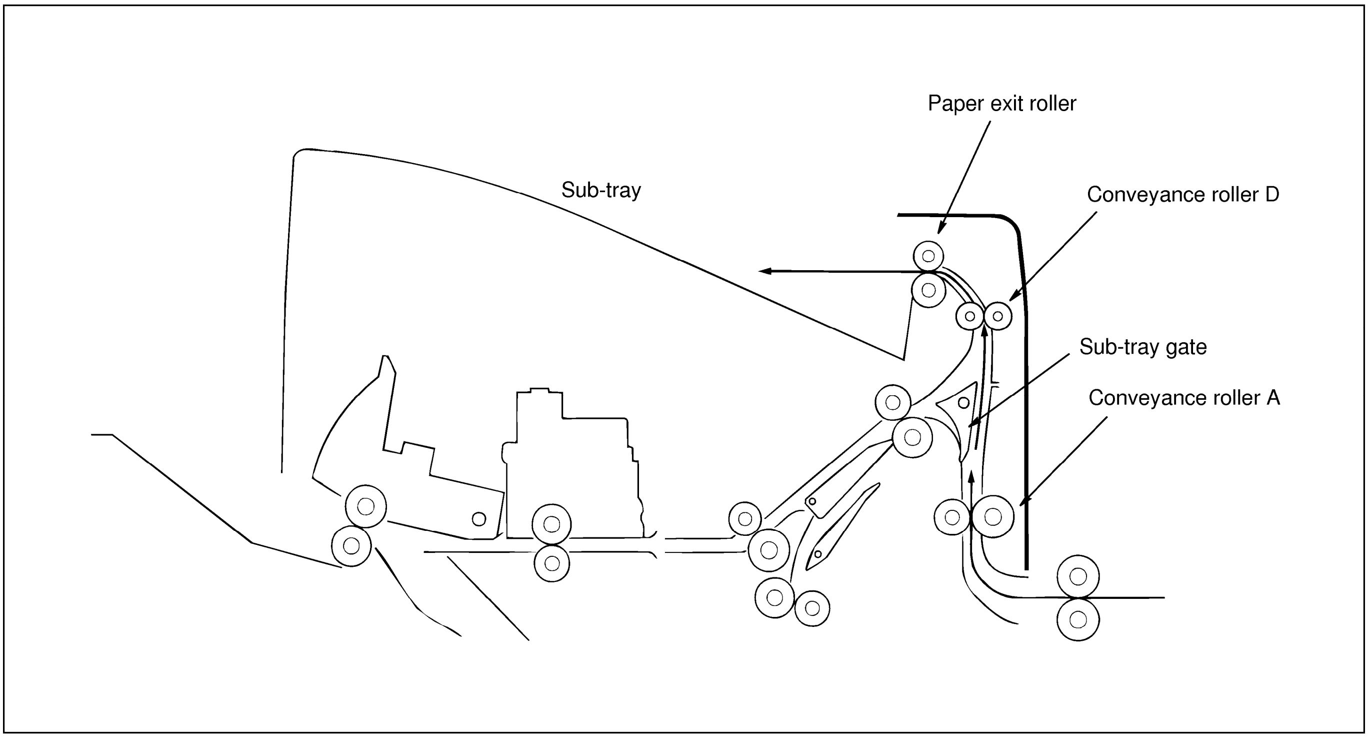
(1) The odd-numbered pages are exited to the main tray with the image side face down.

(2) The even-numbered pages are shifted 30mm to the rear by the conveyance slide shaft of the shift unit and then exited to the main tray.


30mm
Gate
Sub-tray gate
Shift unit
Main tray
Conveyance roller A
Conveyance roller B
Paper exit roller
Conveyance slide shaft
Conveyance roller C

[4] Sub-tray mode

The sub-tray gate opens. Paper exited from the main body is conveyed and exited to the sub-tray.

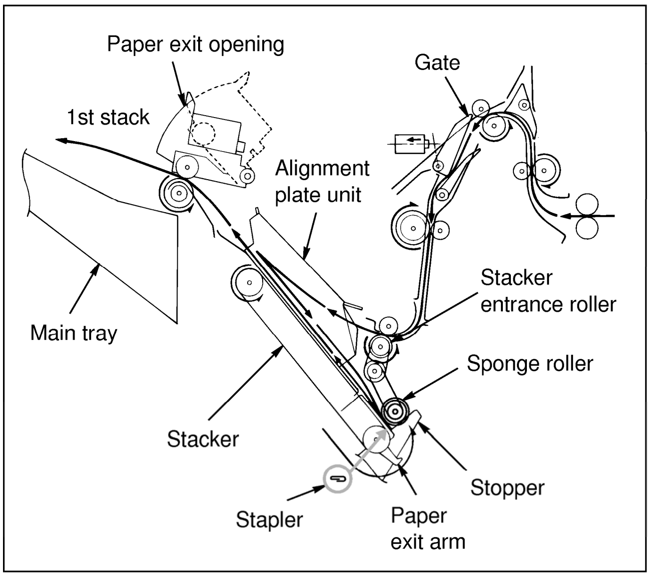

Paper exit roller
Sub-tray
Conveyance roller D
Sub-tray gate
Conveyance roller A

[5] Staple mode

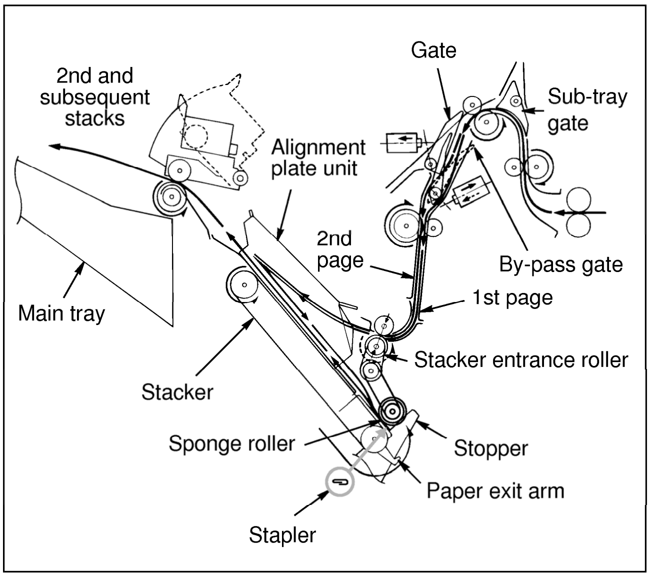
(1) The gate switches to the staple mode.

(2) For A4R paper and above, the paper exit opening opens.

(3) The first stack of paper is conveyed and stacked.
  (a) The sponge roller of the stacker section sends the paper to the stopper and the paper is lined up in the lengthwise direction.
  (b) The alignment plate unit lines up paper in the widthwise direction.
  (c) Paper is stapled.
  (d) The first stack is conveyed by the paper exit arm and exited to the main tray.

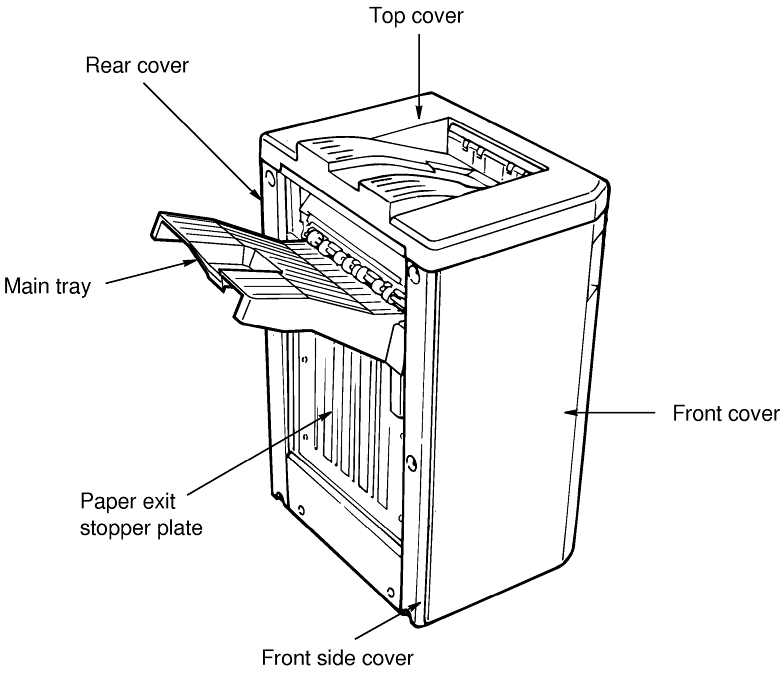

Paper exit opening
Gate
1st stack
Alignment plate unit
Main tray
Stacker entrance roller
Sponge roller
Stacker
Stopper
Stapler
Paper exit arm

(4) The second and subsequent stacks of paper are conveyed and stacked.
  (a) The first page stops in the stacker entrance with the by-pass gate opened. The stacker entrance roller stops to wait for the previous stack to be exited.
  (b) The by-pass gate is closed and the second page is stacked on top of the first.
  (c) Once the previous stack has exited, the stack entrance roller rotates and the first and second pages are simultaneously sent to the stacker.
  - The above steps (a) to (c) are for paper to a maximum of A4 size.
  (d) The sponge roller of the stacker section sends the paper to the stopper and the paper is lined up in the lengthwise direction.
  (e) The alignment plate unit lines up paper in the widthwise direction.
  (f) When all paper is conveyed to the stacker, the paper is stapled.
  (g) The second and subsequent sets are conveyed by the paper exit arm and the paper is exited to the main tray.


Gate
2nd and subsequent stacks
Sub-tray gate
Alignment plate unit
2nd page
By-pass gate
1st page
Main tray
Stacker entrance roller
Stacker
Sponge roller
Stopper
Paper exit arm
Stapler

EXTERNAL SECTION

[1] Composition


Top cover
Rear cover
Main tray
Front cover
Paper exit stopper plate
Front side cover

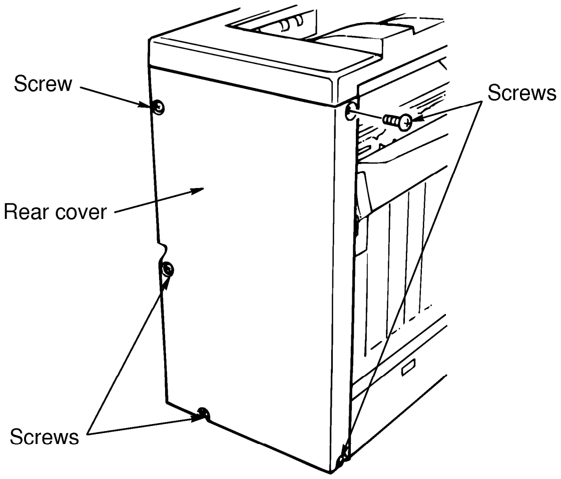
[2] Disassembly and Assembly

⚠ **CAUTION**
Be sure that the power cord has been unplugged from the outlet.

1. Removing/installing the rear and top covers

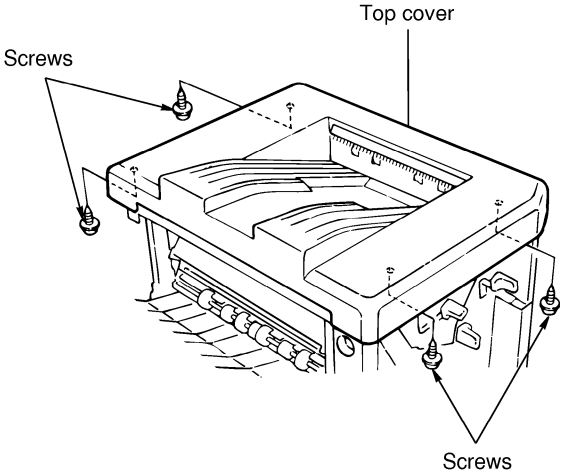
a. Procedure

(1) Remove the 5 screws and remove the rear cover.


Screw
Screws
Rear cover
Screws

(2) Open the front cover.

(3) Remove the 4 screws and remove the top cover.


Top cover
Screws
Screws

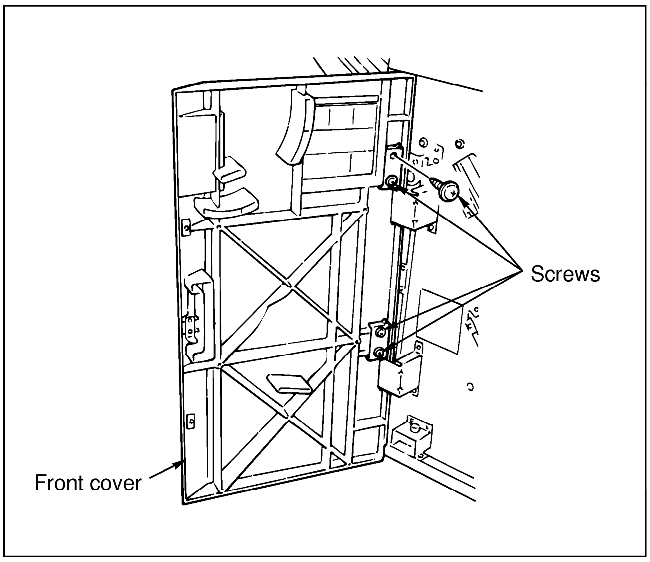
(4) Reinstall the rear and top covers in the opposite sequence to removal.

2. Removing and installing the front cover

a. Procedure

(1) Open the front cover.

(2) Remove the 4 screws and remove the front cover.


Screws
Front cover

(3) Reinstall the front cover in the opposite sequence to removal.

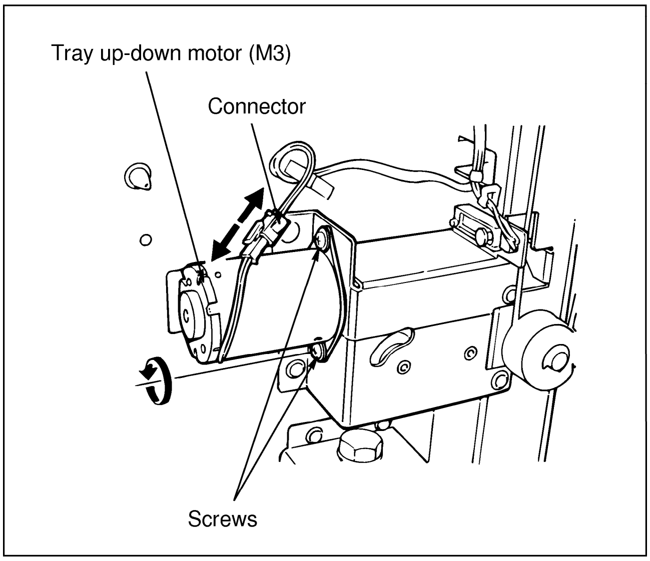
3. Removing and installing the main tray

a. Procedure

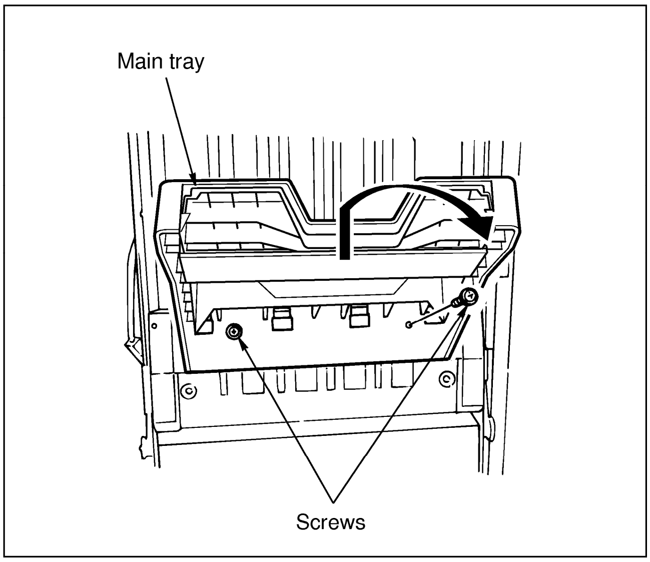
(1) Remove the rear cover.

(2) Remove the connector and the 2 screws, then remove the tray up-down motor (M3).

CAUTION: Take out the tray up-down motor while supporting the main tray with your hand.


Tray up-down motor (M3)
Connector
Screws

(3) Remove the 2 screws, lift up and remove the main tray.

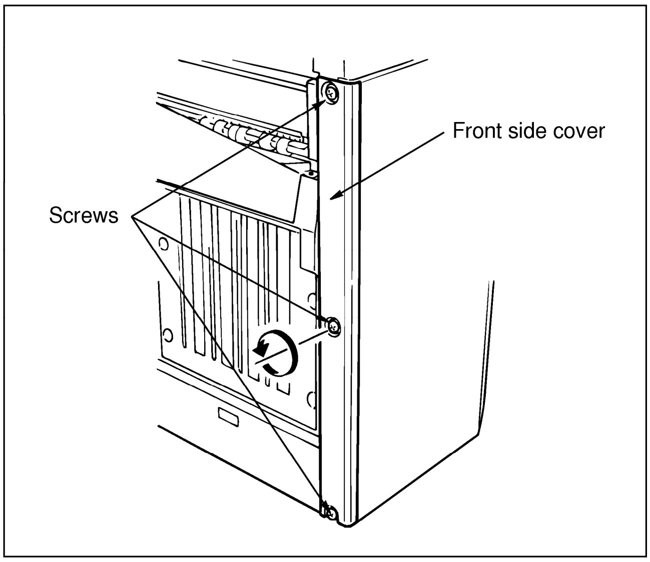

Main tray
Screws

(4) Reinstall the shift tray in the opposite sequence to removal.

4. Removing and installing the front side cover

a. Procedure

(1) Remove the 3 screws and remove the front side cover.


Front side cover
Screws

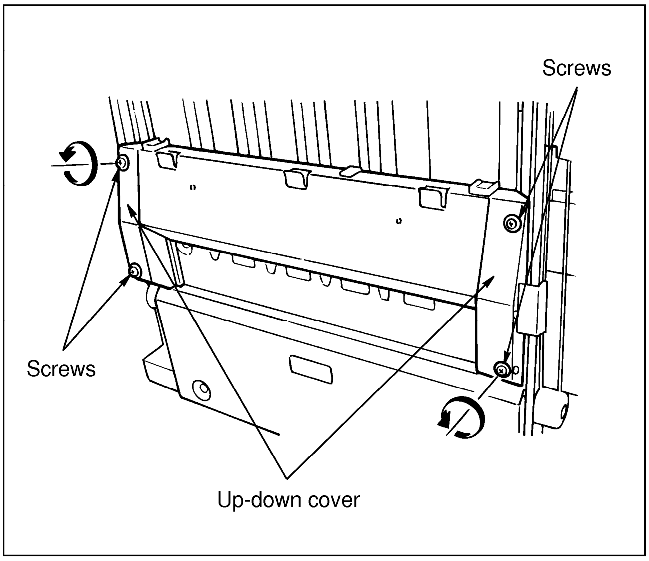
(2) Reinstall the front side cover in the opposite sequence to removal.

5. Removing and installing the paper exit stopper plate

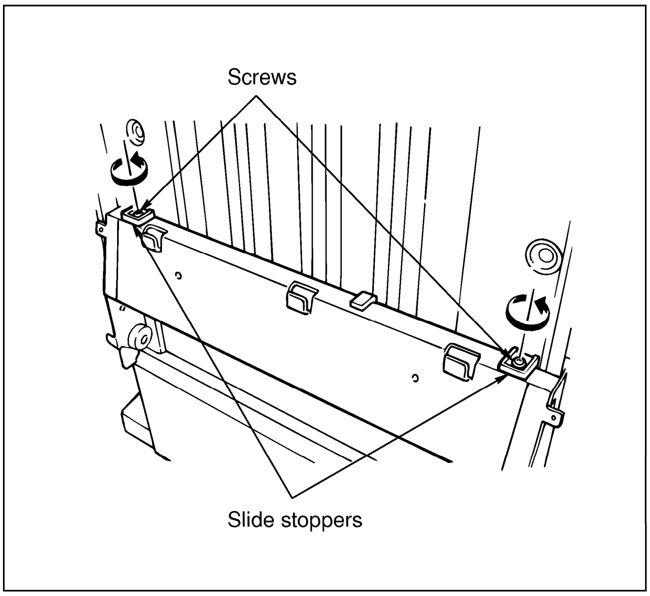
a. Procedure

(1) Remove the rear cover, main tray and the front side cover.

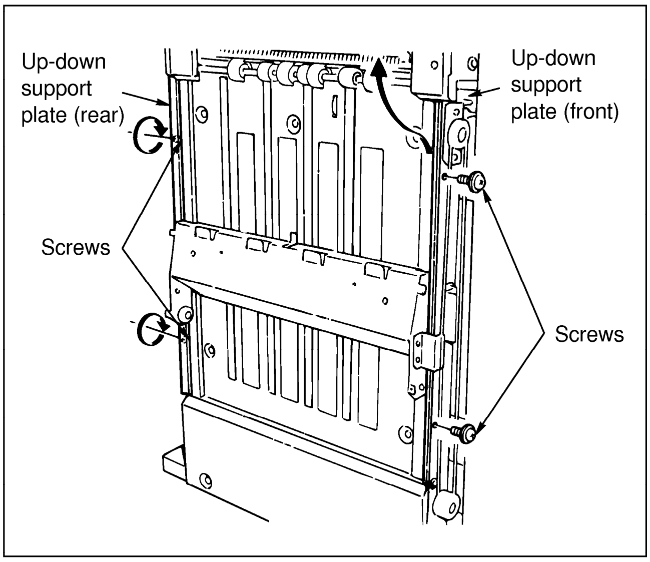
(2) Remove the 4 screws and remove the left and right up-down covers.


Screws
Screws
Up-down cover

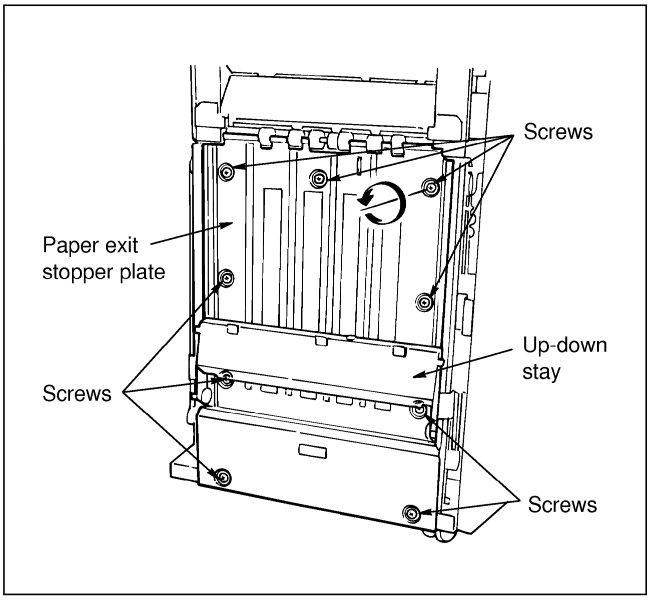
(3) Remove the 2 screws and remove the 2 slide stoppers.


Screws
Slide stoppers

(4) Remove the 2 screws and take out the up-down support plate (front and rear).


Up-down support plate (rear)
Up-down support plate (front)
Screws
Screws

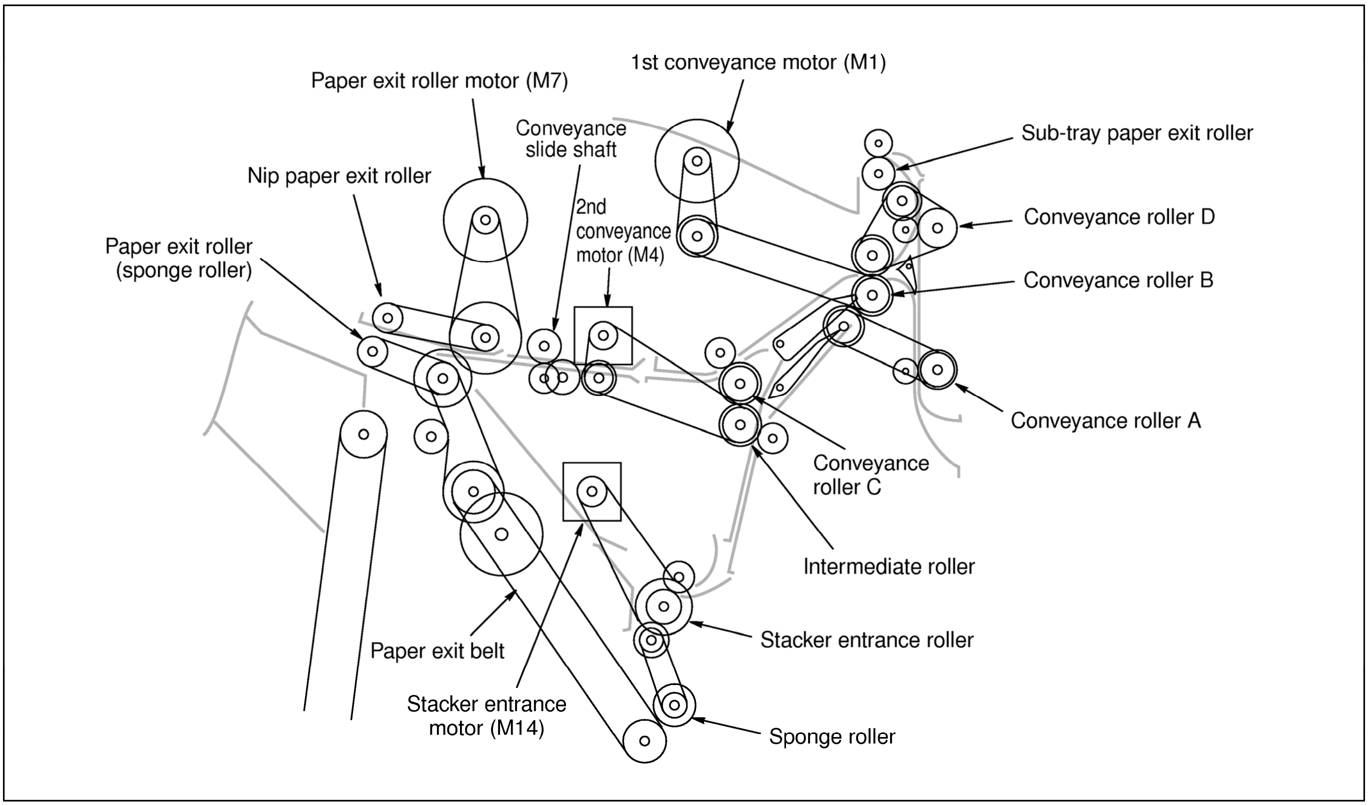
(5) Remove the 9 screws, lift the up-down stay and take out the paper exit stopper plate to the lower side.


Screws
Paper exit stopper plate
Up-down stay
Screws
Screws

(6) Reinstall the paper exit stopper plate in the opposite sequence to removal.

CONVEYANCE SECTION

[1] Composition


1st conveyance motor (M1)
Paper exit roller motor (M7)
Conveyance slide shaft
Sub-tray paper exit roller
Nip paper exit roller
2nd conveyance motor (M4)
Conveyance roller D
Paper exit roller (sponge roller)
Conveyance roller B
Conveyance roller A
Conveyance roller C
Intermediate roller
Stacker entrance roller
Paper exit belt
Stacker entrance motor (M14)
Sponge roller

[2] Mechanism

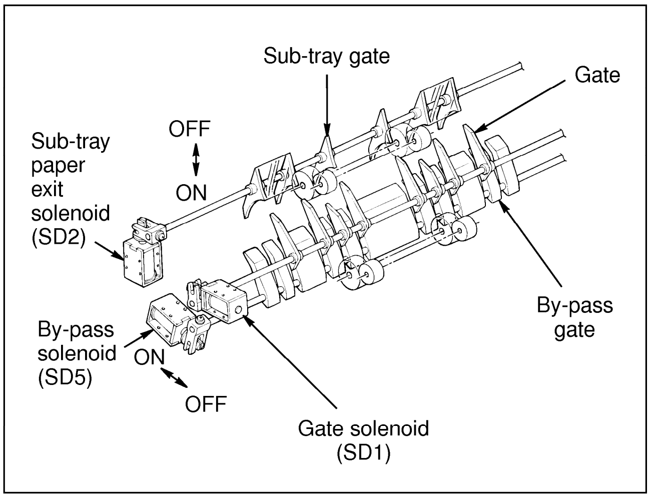
1. Paper conveyance

Paper conveyance is performed by the conveyance rollers A, B, C and D, the intermediate roller, conveyance slide shaft and sub-tray paper exit roller. These components are driven by the 1st conveyance motor (M1) and the 2nd conveyance motor (M4) through the timing belt.

Stacking to the paper stacker is performed by the stacker entrance roller and sponge roller. These are driven by the stacker entrance motor (M14) via the timing belt.

Paper exiting is performed by the stacker paper exit belt arm and the paper exit rollers. These are driven by the paper exit motor (M7) via the timing belt.

2. Paper path switching

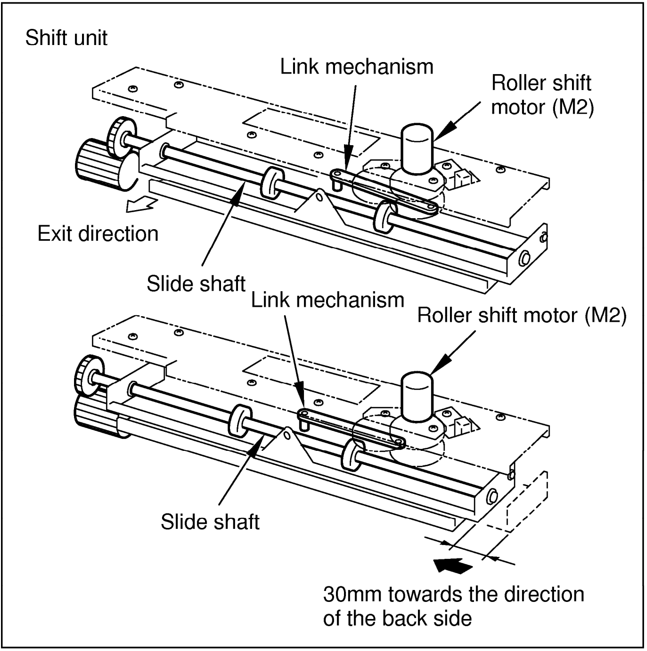

Sub-tray gate
Gate
Sub-tray paper exit solenoid (SD2)
OFF
ON
By-pass gate
By-pass solenoid (SD5)
ON
OFF
Gate solenoid (SD1)

The paper route switches using the gate, sub-tray gate and by-pass gate. Each gate operates with the ON/OFF switching of the gate solenoid (SD1), sub-tray paper exit solenoid (SD2) and by-pass solenoid (SD5).

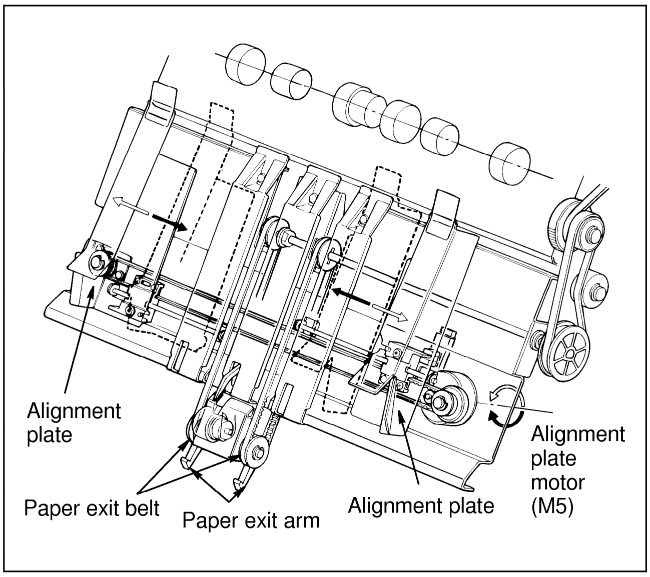
3. Shift unit sort shift operation

(1) The paper in the shift unit is fed in the exit direction by the slide shaft.

(2) When the roller shift motor (M2) rotates, the link mechanism shifts the paper along with the slide shaft, 30mm towards the direction of the back side.


Shift unit
Link mechanism
Roller shift motor (M2)
Exit direction
Slide shaft
Link mechanism
Roller shift motor (M2)
Slide shaft
30mm towards the direction of the back side

4. Stacker unit


Alignment plate
Paper exit belt
Paper exit arm
Alignment plate
Alignment plate motor (M5)

Paper alignment

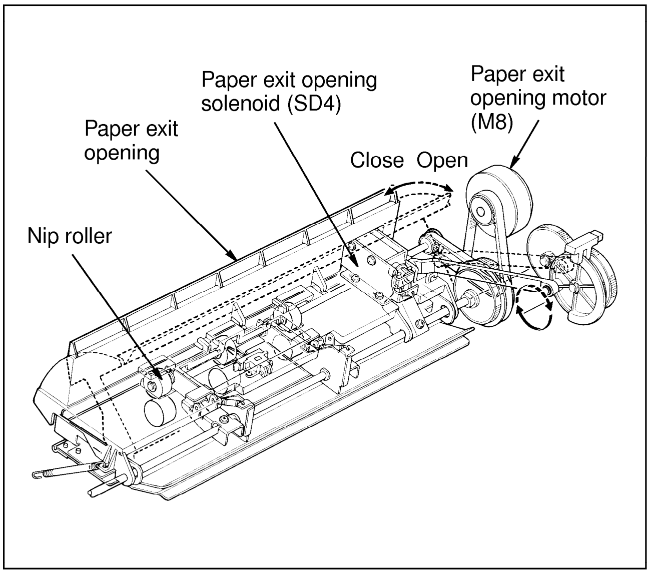
Paper in the stacker is lined up by the forward and reverse movement of the alignment plates. The forward/reverse motion of the alignment plates is performed by the alignment plate motor (M5).

Paper exiting

The paper exit arm sends the stapled paper out to the paper exit opening.

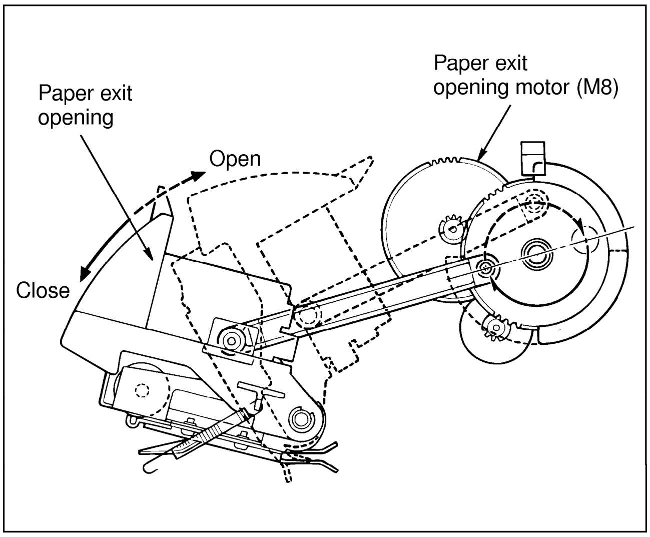
The paper exit belt is rotated by the paper exit roller motor (M7).

5. Paper exit opening unit

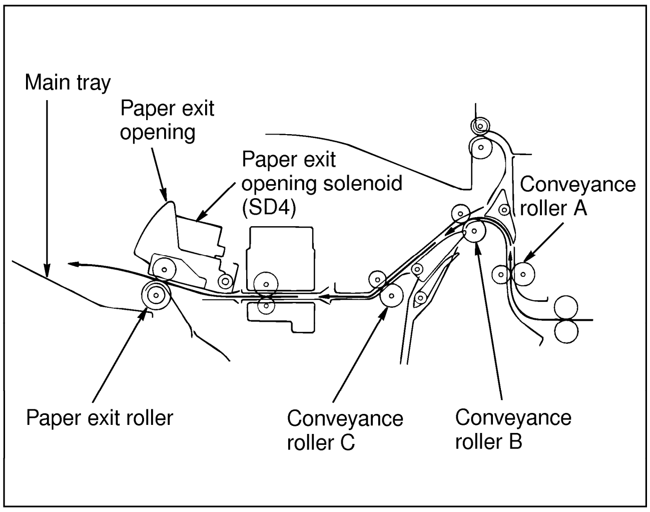

Paper exit opening solenoid (SD4)
Paper exit opening motor (M8)
Paper exit opening
Close
Open
Nip roller

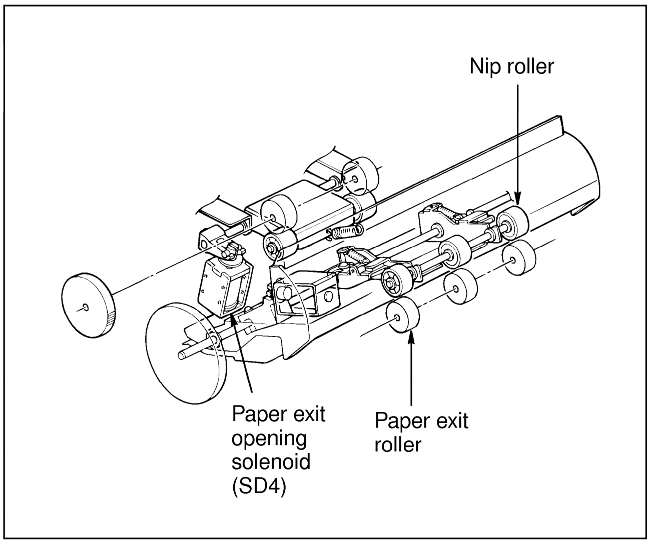
(1) Stapling mode for paper sized A4R and above
The paper exit opening is opened from the time copying commences to the time stapling is complete.

(2) Paper exit of the staple mode
When the stapling has finished, the paper exit opening is closed, the paper gripped and exited to the main tray. The opening and closing of the paper exit opening is performed by the paper exit opening motor (M8).


Paper exit opening motor (M8)
Paper exit opening
Open
Close

(3) Pressure of the paper exit roller
The paper exit roller rotation is slower than the conveyance rollers A, B and C. Therefore pressure is released at times other than when paper is exiting. When the paper reaches the paper exit opening the paper exit roller applies pressure and paper is exited to the main tray. The pressing and releasing of paper is performed by the paper exit opening solenoid (SD4).


Main tray
Paper exit opening
Paper exit opening solenoid (SD4)
Conveyance roller A
Paper exit roller
Conveyance roller C
Conveyance roller B

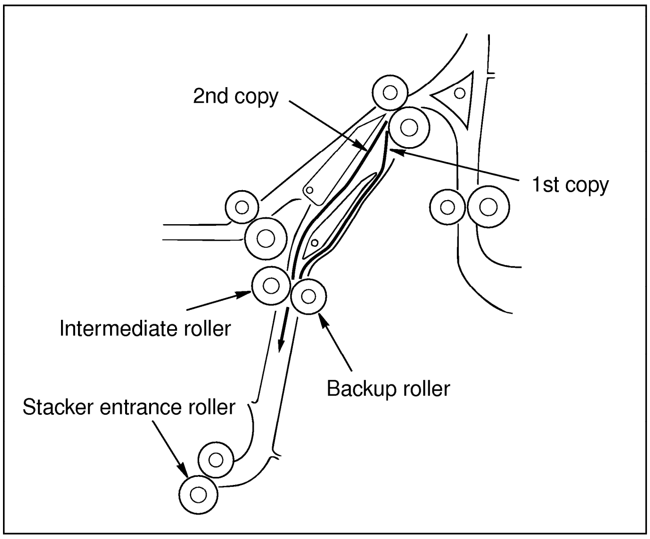

Nip roller
Paper exit opening solenoid (SD4)
Paper exit roller

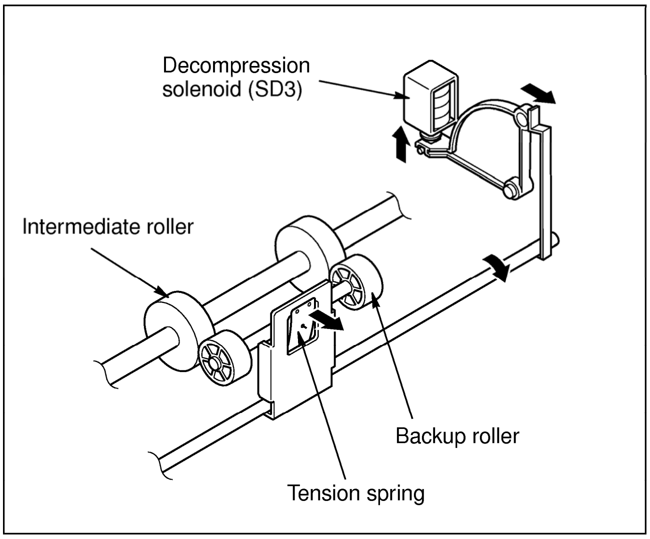
6. Intermediate conveyance roller

In this machine, in order to be compatible with thick paper, it has its pressure of the intermediate conveyance roller set at a slightly higher level.

While in conveyance collectively of the 1st and 2nd copies of the 2nd set and later to the stacker in staple copy mode for small-sized paper, the decompression solenoid (SD3) is operated to lower the pressure of the intermediate conveyance roller.

This is to prevent dirt from the roller from sticking to the paper and wrinkles from taking place on paper in conveyance.


2nd copy
1st copy
Intermediate roller
Backup roller
Stacker entrance roller


Decompression solenoid (SD3)
Intermediate roller
Backup roller
Tension spring

[3] Disassembly and Assembly

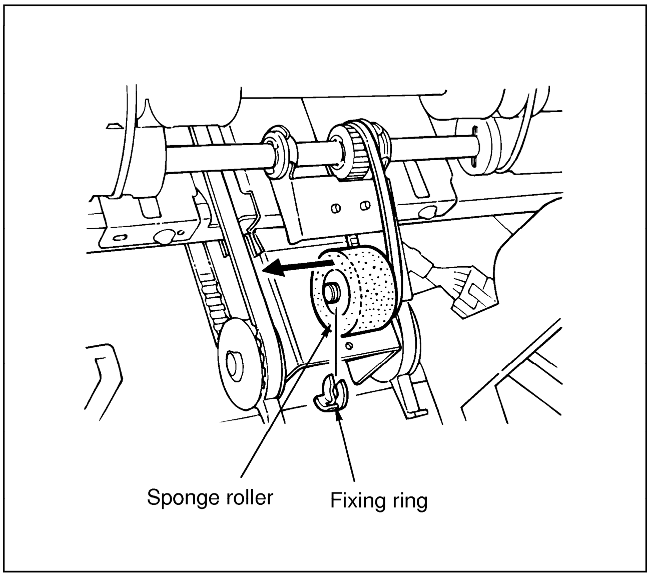
⚠ **CAUTION**

Be sure to remove the power cord from the power outlet.

1. Exchanging the stacker unit section sponge roller

a. Procedure

(1) Open the front cover, remove the fixing ring of the stacker unit section and then remove the sponge roller.

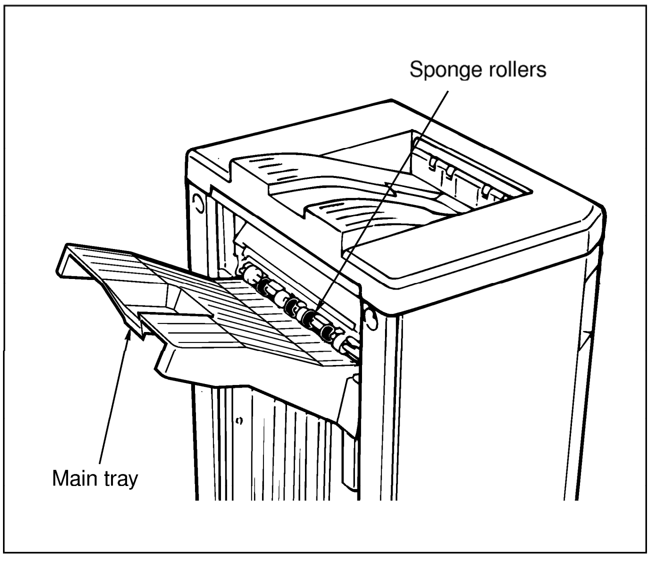

Sponge roller
Fixing ring

(2) Reinstall the sponge roller in the opposite sequence to removal.

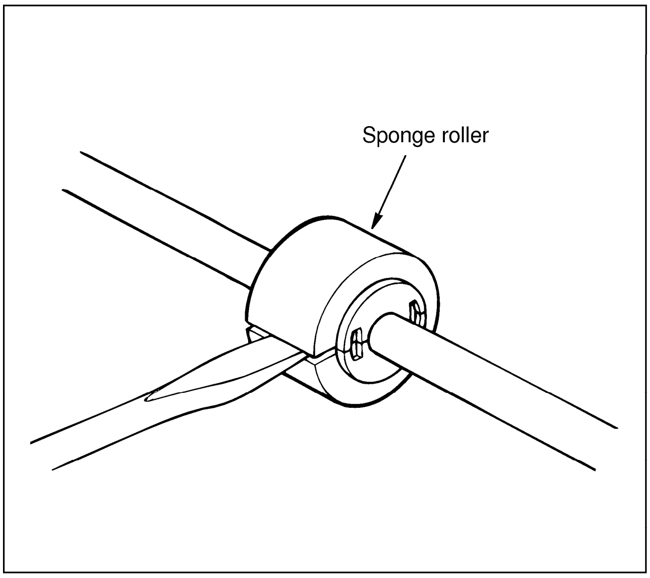
2. Exchanging the paper exit roller (sponge roller)

a. Procedure

(1) Move the main tray down by using the 47 mode function (75-06 code).

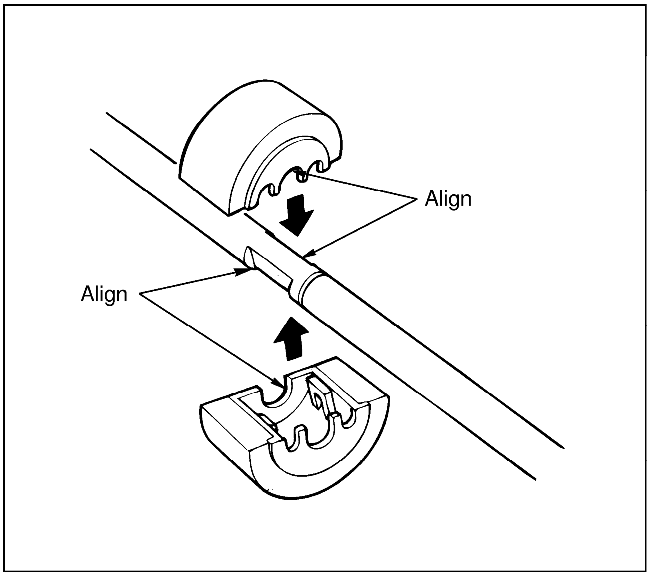

Sponge rollers
Main tray

(2) Insert a screwdriver into the slot of the sponge roller, then pry the roller open.


Sponge roller

(3) Align the grooves of the new sponge rollers with the shaft.

(4) Press the sponge rollers until a click sounds, so that they are properly installed.


Align
Align

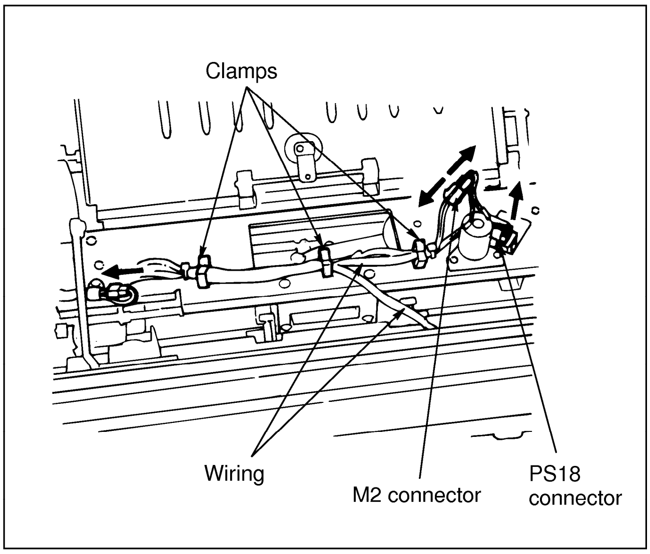
3. Removing and reinstalling the shift unit

a. Procedure

(1) Remove the following parts:
- rear cover
- top cover

(2) Remove the connector of M2 and PS18.

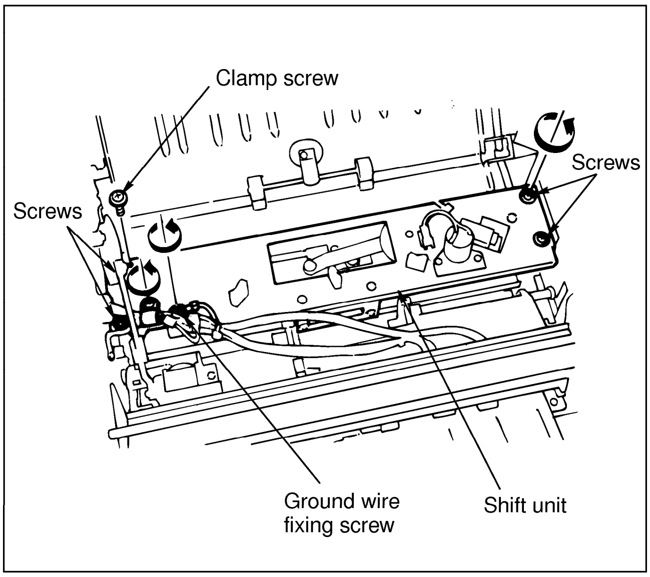
(3) Remove the wiring from the three clamp positions.


Clamps
Wiring
M2 connector
PS18 connector

(4) Remove the ground wire fixing screw.

(5) Remove the clamp screw.

(6) Remove the 4 screws, then remove the shift unit.


Clamp screw
Screws
Screws
Ground wire fixing screw
Shift unit

(7) Reinstall the shift unit in the opposite sequence to removal.

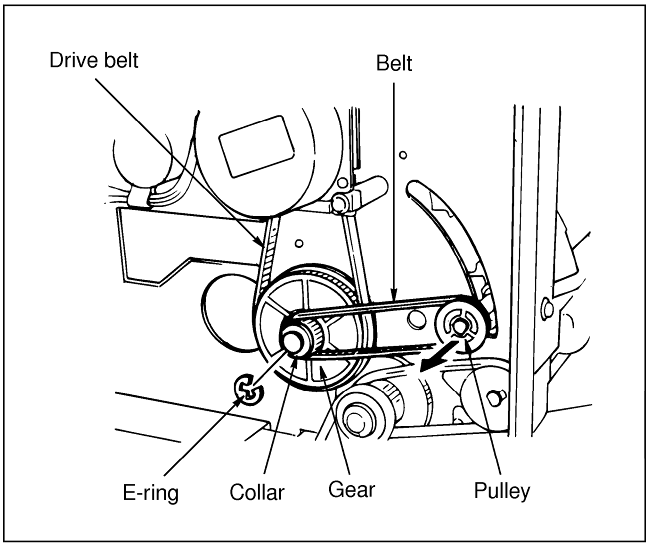
4. Removing and installing the paper exit opening unit

a. Procedure

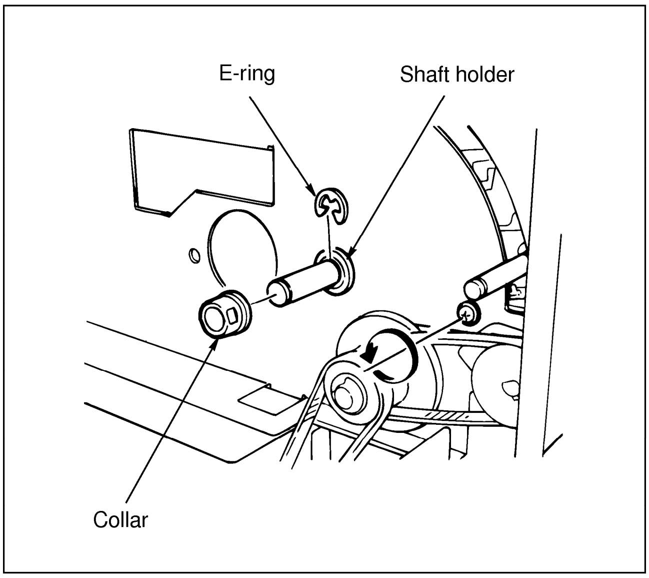
(1) Remove the following parts:
- rear cover
- top cover
- front side cover
- shift unit

(2) Remove the pulley and belt.

(3) Remove the E-ring and then remove the collar, gear and drive belt.


Drive belt
Belt
E-ring
Collar
Gear
Pulley

(4) Remove the collar, E-ring and shaft holder.

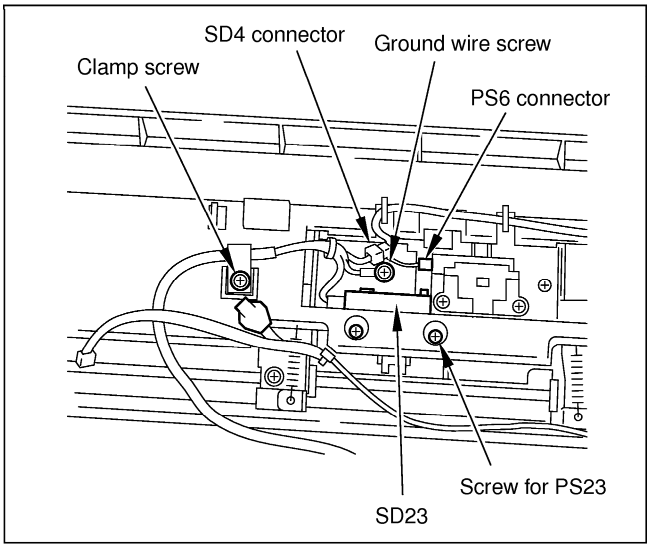

E-ring
Shaft holder
Collar

(5) Remove the clamp screw and the ground wire screw.

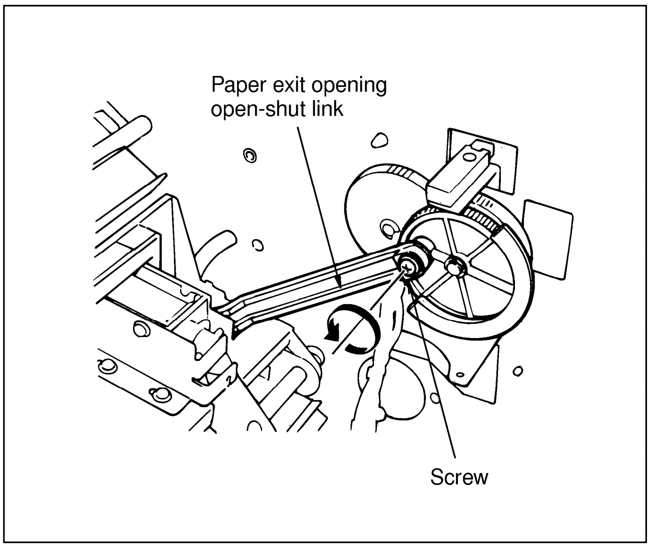
(6) Remove the connector of SD4 and PS6.

(7) Remove a set screw and withdraw the PS23 from the unit, then remove the connector.

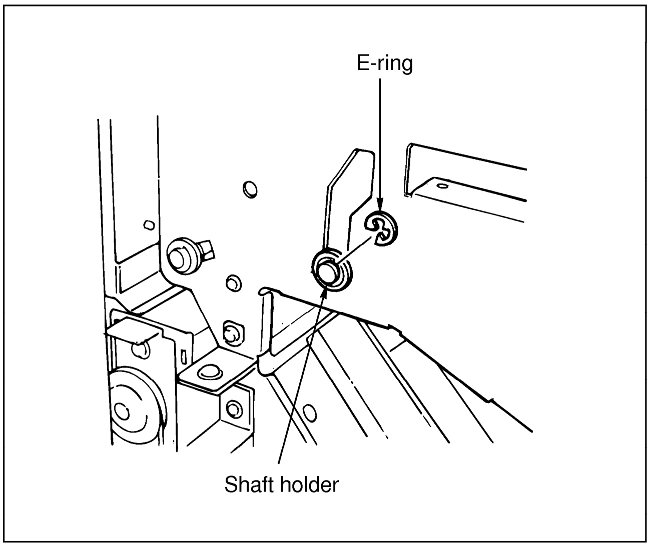
Note: When withdrawing the PS23, ensure that needless force is not applied to the lever below the PS23.


SD4 connector
Ground wire screw
Clamp screw
PS6 connector
Screw for PS23
SD23

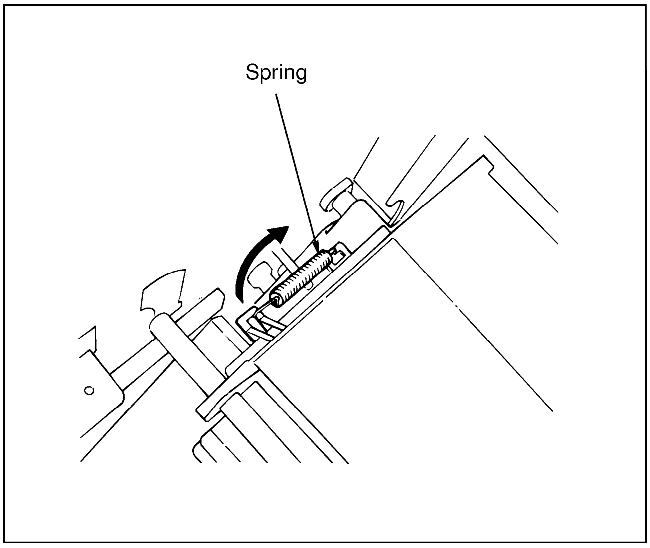
(8) Remove the paper exit opening open-shut link screw.


Paper exit opening open-shut link
Screw

(9) Open the front cover and remove the front side E-ring and shaft holder.

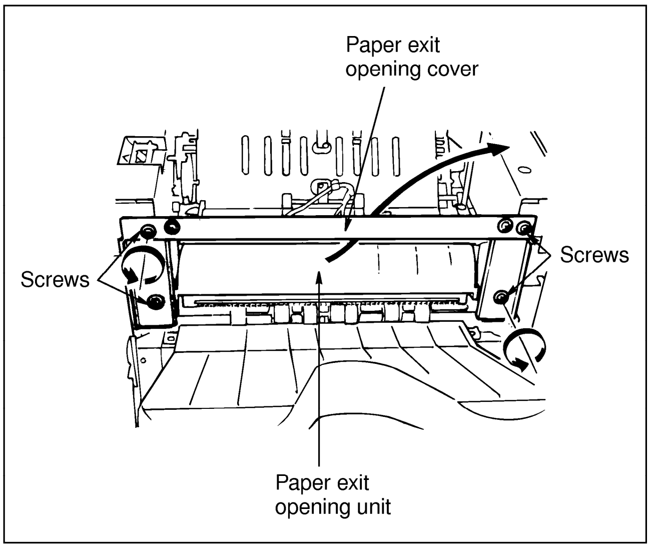

E-ring
Shaft holder

(10) Remove the spring.



(11) Remove the 4 screws and then remove the paper exit opening cover.

(12) Take the paper exit opening unit out to the top.


Paper exit opening cover
Screws
Screws
Paper exit opening unit

(13) Reinstall the paper exit opening unit in the opposite sequence to removal.

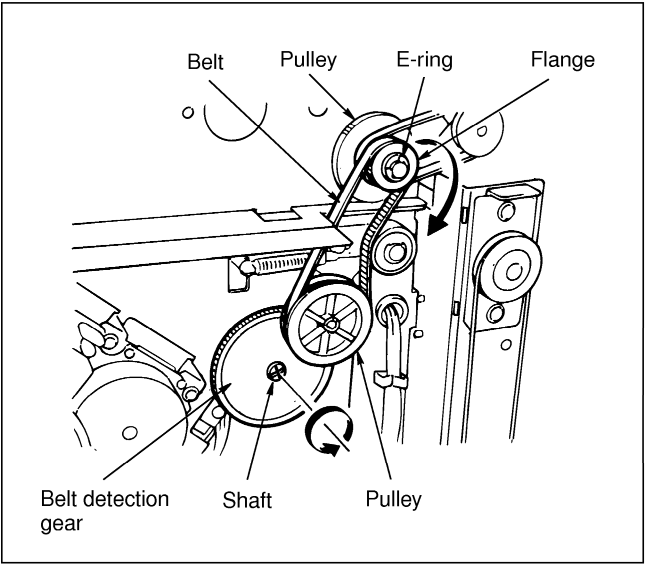
5. Removing/installing the stacker unit

a. Procedure

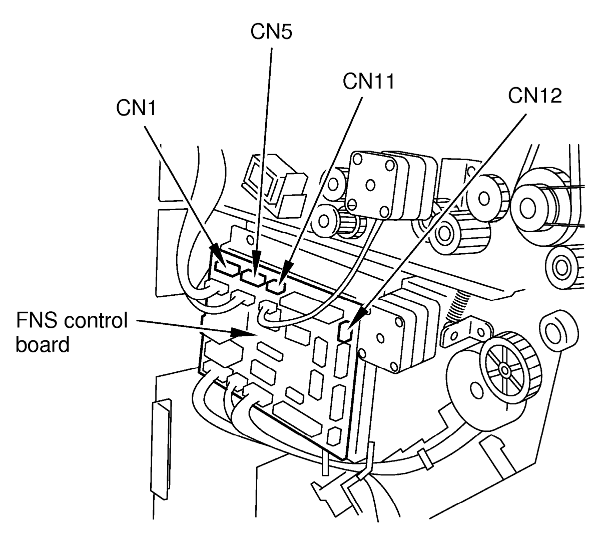
(1) Remove the following parts:
- rear cover
- top cover
- front side cover

(2) Take out the E-ring and flange, then remove the belt and the two pulleys.

(3) Remove the shaft with a screwdriver and remove the belt detection gear.

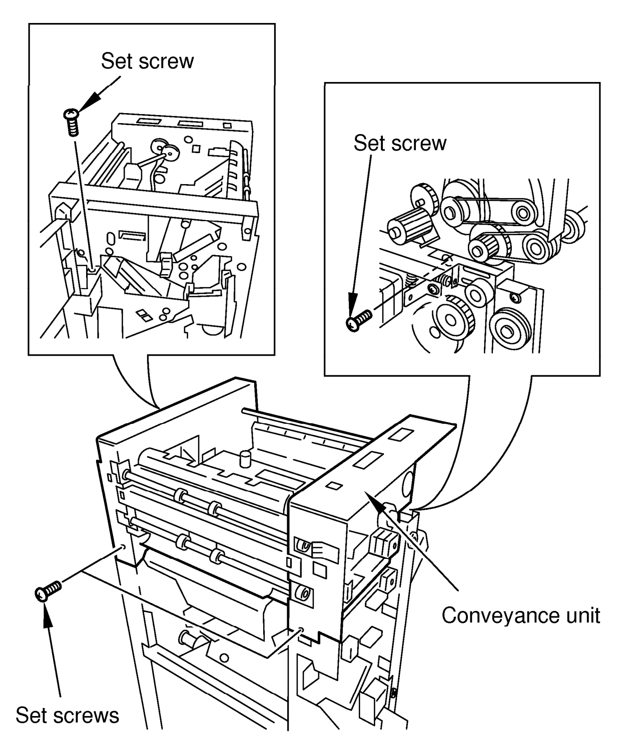

Belt
Pulley
E-ring
Flange
Belt detection gear
Shaft
Pulley

(4) Remove the four connectors (CN1, CN5, CN11, CN12) on the FNS control board.

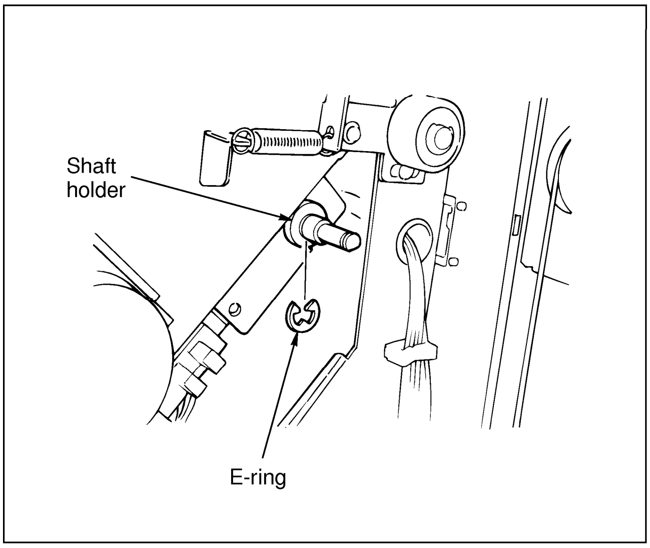

CN5
CN11
CN1
CN12
FNS control board

(5) Remove the four set screws, then remove the conveyance unit.

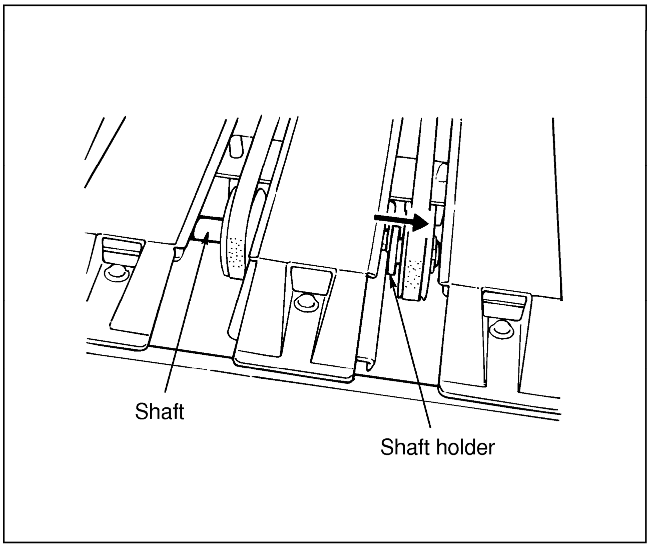
Note: When placing the conveyance unit on the floor, etc., ensure that it is placed upside down.


Set screw
Set screw
Conveyance unit
Set screws

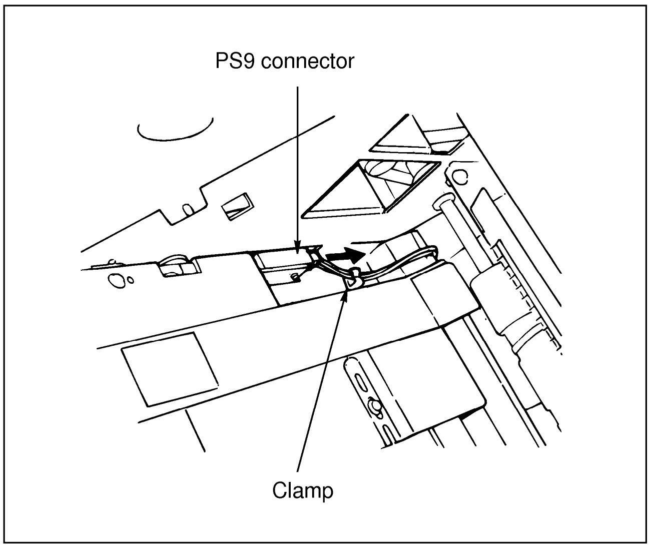
(6) Remove the E-ring and then shift the shaft holder.


Shaft holder
E-ring

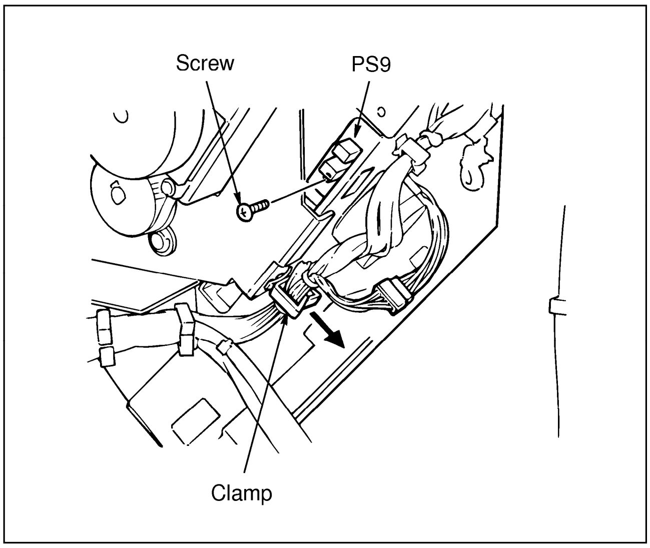
(7) Shift the shaft holder and then remove the shaft.


Shaft
Shaft holder

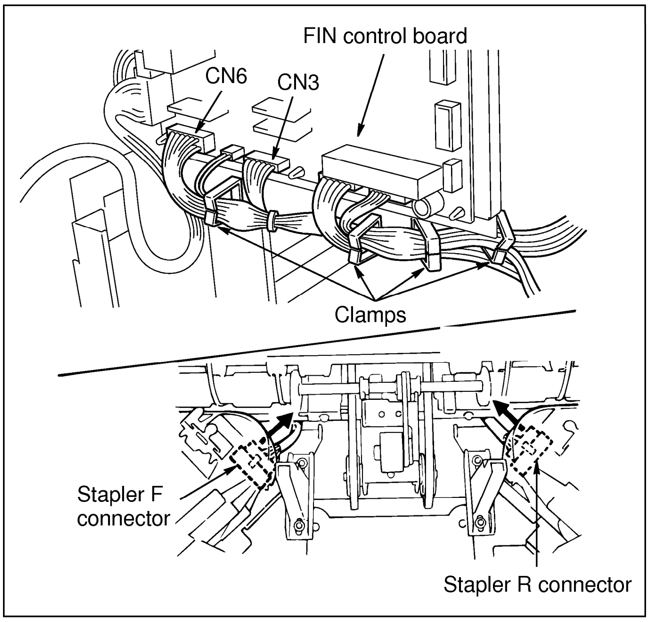
(8) Remove the connector of PS9 and then remove the wiring from the clamp.


PS9 connector
Clamp

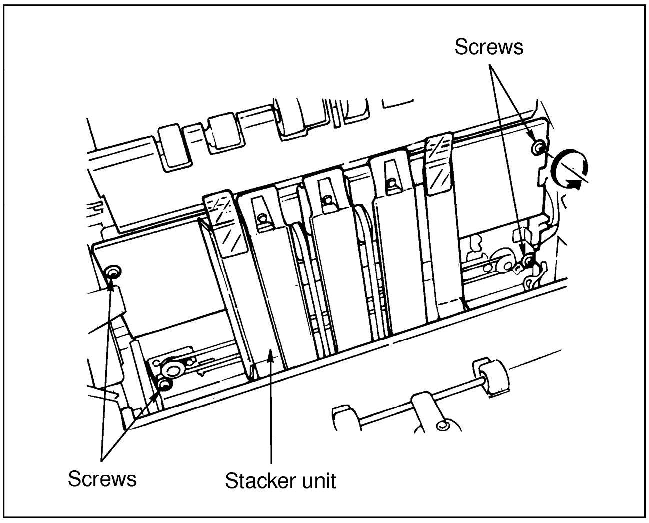
(9) Remove the screw and then remove PS9.


Screw
PS9
Clamp

(10) Remove CN6 and CN3 on the FNS control board and the stapler F and R connectors. Then remove the wiring from the clamp.


FIN control board
CN6
CN3
Clamps
Stapler F connector
Stapler R connector

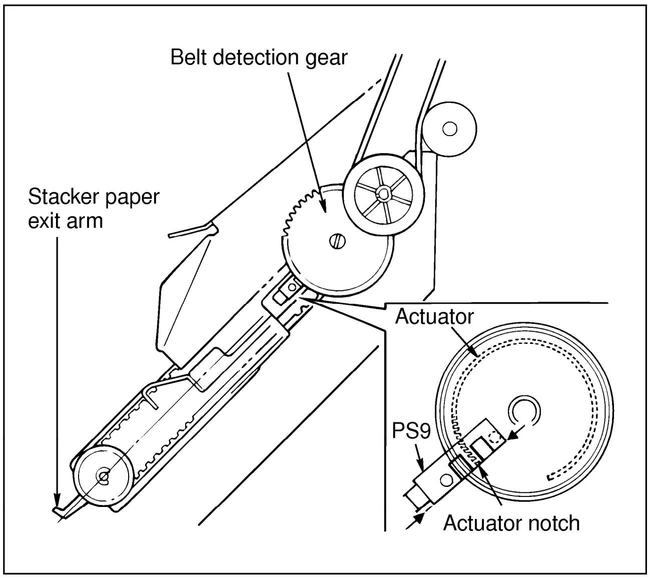
(11) Remove the 4 screws and then remove the stacker unit.


Screws
Screws
Stacker unit

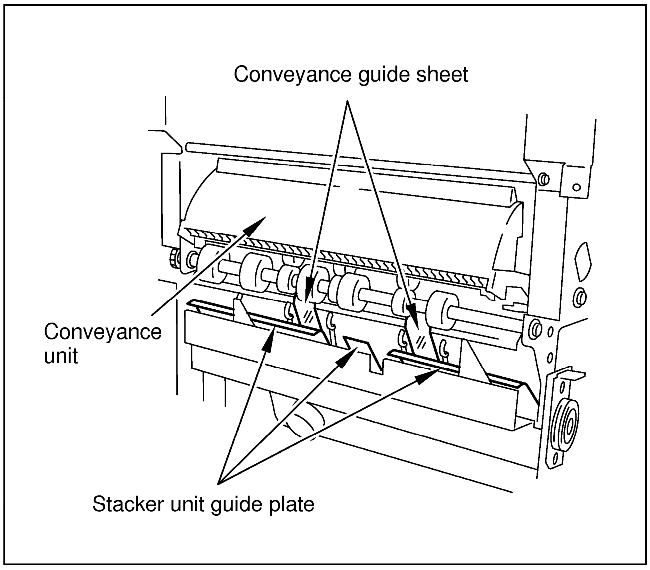
(12) Reinstall the stacker unit in the opposite sequence to removal.

CAUTION:

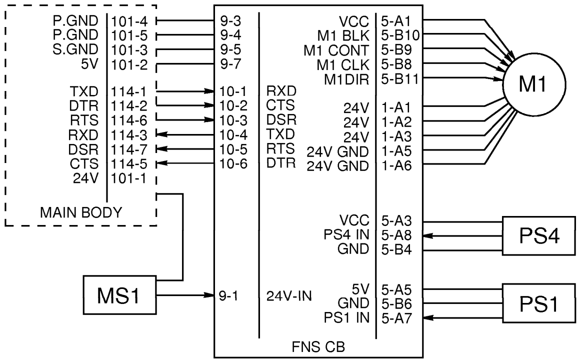
1. When the stacker paper exit arm is in the position as that of the diagram, engage the gear so that the notch of the detection gear actuator meets with the edge of PS9 as per the diagram below**.**


Belt detection gear
Stacker paper exit arm
Actuator
PS9
Actuator notch

2. When reinstalling the stacker unit, be careful not to damage the conveyance guide sheets on the stacker unit guide plate.


Conveyance guide sheet
Conveyance unit
Stacker unit guide plate

[4] M1 (1st conveyance) Control


P.GND
P.GND
S.GND
5V
TXD
DTR
RTS
RXD
DSR
CTS
24V
101-4
101-5
101-3
101-2
114-1
114-2
114-6
114-3
114-7
114-5
101-1
MAIN BODY
MS1
9-3
9-4
9-5
9-7
10-1
10-2
10-3
10-4
10-5
10-6
9-1
RXD
CTS
DSR
TXD
RTS
DTR
24V-IN
VCC
M1 BLK
M1 CONT
M1 CLK
M1DIR
24V
24V
24V
24V GND
24V GND
VCC
PS4 IN
GND
5V
GND
PS1 IN
5-A1
5-B10
5-B9
5-B8
5-B11
1-A1
1-A2
1-A3
1-A5
1-A6
5-A3
5-A8
5-B4
5-A5
5-B6
5-A7
FNS CB
M1
PS4
PS1

The 1st conveyance control during main tray paper exit and the paper exit control during sub-tray paper exit are done by transmitting the rotation of M1 (1st conveyance) to conveyance rollers (A), (B), (D), and to the sub-tray paper exit roller.
FNS CB (FNS control board) controls M1.

1. Operation

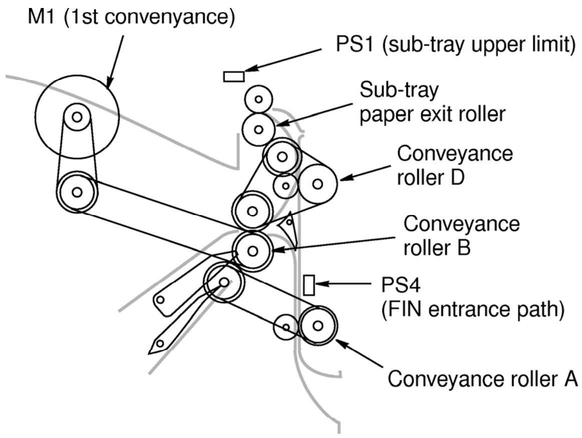
a. Interlock

Paper 1st conveyance control commences with the ON signal from the main body start button. However, if MS1 (interlock) is OFF, error data will be output to the main body CB and control will not commence.

b. M1 (1st conveyance) Control

(1) Main tray paper exit operation
M1 (1st conveyance) turns ON by the ON signal of the start button and goes OFF after the specified time when PS4 (FIN entrance path) detects the trailing edge of the final copy.

(2) Sub-tray paper exit operation
M1 turns ON by the ON signal of the start button, and rotates at high speed. When PS4 (FIN entrance path) detects the trailing edge of the paper, rotation switches to low speed after the specified time. Then, rotation once again returns to high speed to be ready for conveyance of the next copy. On detection of the trailing edge of the final copy by PS4, it turns OFF in the specified time.


M1 (1st convenyance)
PS1 (sub-tray upper limit)
Sub-tray
paper exit roller
Conveyance
roller D
Conveyance
roller B
PS4
(FIN entrance path)
Conveyance roller A

c. Sub-tray Upper Limit Detection Control

PS1 (sub-tray upper limit) is fitted in the sub-tray, and when PS1 turns ON by detecting paper during sub-tray paper exit, the main body and the FNS stop after ejecting the paper being copied at that time.

2. Signals

a. Input signals

(1) TXD (main body CB → FNS CB)
This is a serial data line to transmit the operational state of the main body CB to the FNS CB.

(2) DTR (main body CB → FNS CB)
Transmission acknowledgement signal from the main body to FNS.

(3) RTS (main body CB → FNS CB)
Request-to-send signal from the main body to FNS.

(4) 24 V IN (MS1 → FNS CB)
When MS1 (interlock) goes ON, +24 V is output. This power supply is supplied to each electrical load of FNS.

(5) PS1 IN (PS1 → FNS CB)
When the sub-tray is full, PS1 (sub-tray upper limit) goes ON and inputs [L].

(6) PS4 IN (PS4 → FNS CB)
When paper passes through the FNS entrance, this signal turns ON and [L] is input.

b. Output signals

(1) TXD (FNS CB → main body CB)
This is a serial data line to transmit the operational state of the main body CB to the FNS CB.

(2) RTS (FNS CB → main body CB)
Transmission acknowledgement signal from the main body to FNS.

(3) DTR (FNS CB → main body CB)
Request-to-send signal from the main body to FNS.

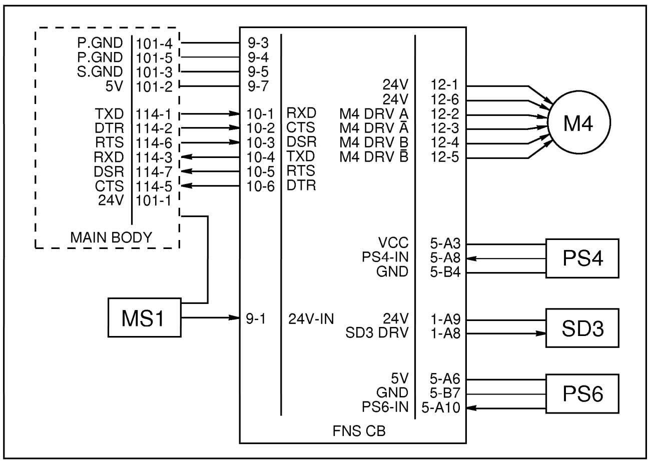
(4) M1 CONT (FNS CB → M1)
Operational signal used by M1 (1st conveyance). M1 turns ON at the same time as the finisher operation start signal.
[H]: OFF
[L]: ON

(5) M1 BLK (FNS CB → M1)
M1 (1st conveyance) brake signal.
[H]: OFF
[L]: ON

(6) M1 CLK (FNS CB → M1)
M1 (1st conveyance) speed adjustment clock.

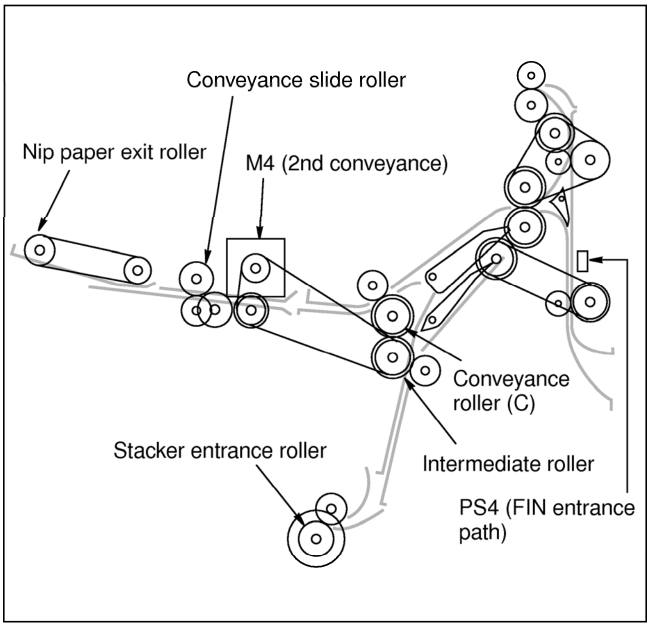
(7) M1 DIR (FNS CB → M1)
M1 (1st conveyance) rotation direction signal.
[H]: Forward rotation (CW)
[L]: Reverse rotation (CCW)

[5] M4 (2nd conveyance) Control


P.GND 101-4
P.GND 101-5
S.GND 101-3
5V 101-2
TXD 114-1
DTR 114-2
RTS 114-6
RXD 114-3
DSR 114-7
CTS 114-5
24V 101-1
MAIN BODY
MS1
9-3
9-4
9-5
9-7
10-1 RXD
10-2 CTS
10-3 DSR
10-4 TXD
10-5 RTS
10-6 DTR
9-1 24V-IN
24V 12-1
24V 12-6
M4 DRV A 12-2
M4 DRV Ā 12-3
M4 DRV B 12-4
M4 DRV B̄ 12-5
M4
VCC 5-A3
PS4-IN 5-A8
GND 5-B4
PS4
24V 1-A9
SD3 DRV 1-A8
SD3
5V 5-A6
GND 5-B7
PS6-IN 5-A10
PS6
FNS CB

The 2nd conveyance control during main tray paper exit is done by transmitting the rotation of M4 (2nd conveyance) to the intermediate roller, conveyance roller (C), and the conveyance slide shaft.
FNS CB (FNS control board) controls M4 only when the main tray paper exit is operated in the sort/group/non-sort/staple mode.

1. Operation


Conveyance slide roller
Nip paper exit roller
M4 (2nd conveyance)
Conveyance roller (C)
Stacker entrance roller
Intermediate roller
PS4 (FIN entrance path)

a. During Sort/Group/Non-Sort Mode

M4 (2nd conveyance) turns ON by the ON signal of the start button, and rotates at high speed. When PS4 (FIN entrance path) detects the trailing edge of the paper fed from the main body, rotation switches to low speed after the specified time.
Then, rotation once again returns to high speed to be ready for conveyance of the next copy. On detection of the trailing edge of the final copy by PS4, it turns OFF in the specified time.

b. During Staple Mode

(1) ON timing of M4 (2nd conveyance)
M4 (2nd conveyance) goes ON by the ON signal of the start button, and rotates at high speed. When PS4 (FIN entrance path) detects the trailing edge of the paper fed from the main body, rotation switches to low speed after the specified time.
Then, rotation once again returns to high speed to be ready for conveyance of the next copy.

(2) Paper conveyance of the 1st copy of the 2nd and later sets
When PS4 (FIN entrance path) detects the trailing edge of the 1st copy fed from the main body, it goes OFF after the specified time, and enters a standby mode to convey the 2nd copy.
As a result, the 1st copy is conveyed to the stacker entrance.

(3) Paper conveyance of the 2nd copy of the 2nd and later sets
When PS4 detects the trailing edge of the 2nd copy, M4 starts to rotate at high speed after the specified time. Then, in the specified time from detection of the trailing edge of the 2nd copy by PS4, M4 is switched over into low speed rotation.
Further, in the specified time, it once again returns to high speed rotation which is the standby state for conveyance of the 3rd copy and later.
For the 3rd copy and later, rotation is switched over into low speed in the specified time after the trailing edge of the copy is detected by PS4, and is returned to high speed in the specified time.

(4) OFF timing of M4 (2nd conveyance)
M4 turns OFF in the specified time after PS6 (paper exit 1) detects the final set stapled.

c. Pressing Release Operation of Intermediate Roller

The intermediate roller, when conveying the 1st and 2nd copies of the 2nd set on collectively in staple copy mode for A4/B5 paper, operates SD3 (decompression) and release its pressing, reducing pressing force of the roller.
SD3 turns ON after PS4 detects the trailing edge of the 1st copy of the 2nd and later sets, and then goes OFF in the specified time after the trailing edge of the 2nd copy of the 2nd and later sets is detected by PS4.

2. Signal

a. Input signals

(1) TXD (main body CB → FNS CB)
This is a serial data line to transmit the operational state of the main body CB to the FNS CB.

(2) DTR (main body CB → FNS CB)
Transmission acknowledgement signal from the main body to FNS.

(3) RTS (main body CB → FNS CB)
Request-to-send signal from the main body to FNS.

(4) 24V IN (main body CB → FNS CB)
+24V is output when MS1 (interlock) is turned ON. This power is supplied to each load of FNS.

(5) PS4 IN (main body CB → FNS CB)
When paper passes through the FNS entrance, this signal turns ON and [L] is input.

(6) PS6 IN (PS6 → FNS CB)
When paper passes through the paper exit opening to the main tray, this signal turns ON and [L] is input.

b. Output signals

(1) TXD (FNS CB → main body CB)
This is a serial data line to transmit the operational state of the main body CB to the FNS CB.

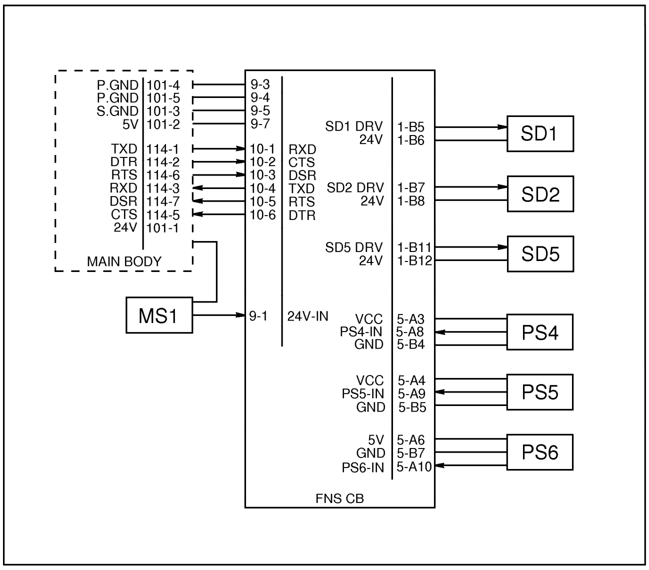
(2) RTS (FNS CB → main body CB)
Transmission acknowledgement signal from the main body to FNS.

(3) DTR (FNS CB → main body CB)
Request-to-send signal from the main body to FNS.

(4) M4 DRV A/M4 DRV B (FNS CB → M4)
M4 (2nd conveyance) drive signal.

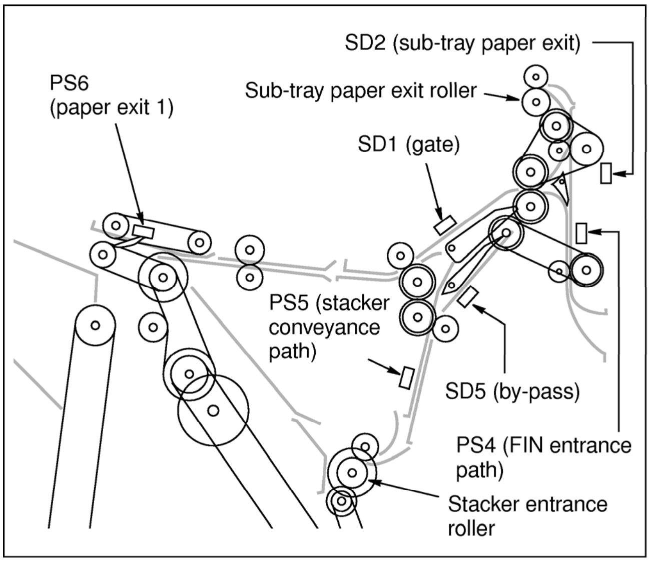
(5) SD3 DRV (FNS CB → SD3)
SD3 (decompression) drive use signal.
[H]: SD3 OFF
[L]: SD3 ON

[6] Gate Control


P.GND 101-4
P.GND 101-5
S.GND 101-3
5V 101-2
TXD 114-1
DTR 114-2
RTS 114-6
RXD 114-3
DSR 114-7
CTS 114-5
24V 101-1
MAIN BODY
MS1
9-3
9-4
9-5
9-7
10-1 RXD
10-2 CTS
10-3 DSR
10-4 TXD
10-5 RTS
10-6 DTR
9-1 24V-IN
SD1 DRV 1-B5
24V 1-B6
SD2 DRV 1-B7
24V 1-B8
SD5 DRV 1-B11
24V 1-B12
VCC 5-A3
PS4-IN 5-A8
GND 5-B4
VCC 5-A4
PS5-IN 5-A9
GND 5-B5
5V 5-A6
GND 5-B7
PS6-IN 5-A10
FNS CB
SD1
SD2
SD5
PS4
PS5
PS6

The paper conveyance path is switched by the ON/OFF switching of SD1 (gate), SD2 (sub-tray paper exit) and SD5 (by-pass). The FNS CB (FNS control board) controls the ON/OFF switching of SD1, SD2 and SD5.

1. Operation


SD2 (sub-tray paper exit)
PS6
(paper exit 1)
Sub-tray paper exit roller
SD1 (gate)
PS5 (stacker
conveyance
path)
SD5 (by-pass)
PS4 (FIN entrance
path)
Stacker entrance
roller

a. Main tray paper exit operation (during sort/group/non-sort mode)

Paper is fed to the main tray via the shift unit. At this time, the paper passes the sub-tray gate and the gate as its conveyance path. These gates, however, are installed so that the shift unit side becomes the conveyance path during idling state, so SD2 (sub-tray paper exit) and SD1 (gate) which drive each gate do not operate.

b. Main tray paper exit operation (during staple mode)

Paper is fed to the main tray via the stacker. At this time, the paper passes the sub-tray gate, gate, and the by-pass gate as its conveyance path. Among these gates, the sub-tray gate is installed so that the stacker side becomes the conveyance path beforehand, thus SD2 does not operate.

(1) SD1 (gate) ON timing
SD1 goes ON by the ON signal of the start button, switches the gate to the stacker side, and enter a standby mode for paper conveyance.

(2) Paper conveyance for paper in sizes other than A4/B5
Paper in sizes other than A4/B5 is conveyed to the stacker side by the gate. At this time, SD5 does not operate and the paper is fed to the stacker entrance roller.

(3) A4/B5 sized paper conveyance (Conveyance of the 1st copy of the 2nd and later batches)
For conveyance of A4 or B5 sized paper, in the specified time after the trailing edge of the final copy of the preceding set is detected by PS4 (FIN entrance path), SD5 is turned ON, switching the bypass gate into By-pass. The 1st copy of the following set is, therefore, guided into the bypass track.

(4) A4/B5 sized paper conveyance (Conveyance of the 2nd copy of the 2nd and later sets)
In the specified time after the trailing edge of the 1st copy is detected by PS4, SD5 turns OFF, closing the bypass gate.
The 2nd copy, therefore, follows the normal course, which is conveyed to the stacker entrance roller together with the 1st copy held in the bypass track.
The 3rd copy and later are conveyed to the stacker in the normal course, where SD5 never turns ON.

(5) OFF timing of SD1 (gate)
SD1 turns OFF in the specified time after PS6 (paper exit 1) detects the final set stapled.

c. Operation to exit to sub-tray

SD2 (sub-tray paper exit) turns ON with the start button ON signal and the sub-tray gate to the sub-tray side.

When PS4 (FIN entrance path) detects the trailing edge of the final copy, SD2 goes OFF after the specified time.

Finishing		SD1	SD2	SD5
Sort / Group / Non-sort		OFF	OFF	OFF
Staple-A4 • B5 (Other)	First page of second and subsequent sets	ON	OFF	ON (OFF)
	Other	ON	OFF	OFF
Sub-tray paper exit		OFF	ON	OFF

2. Signals

a. Input signals

(1) TXD (main body CB → FNS CB)
This is a serial data line to transmit the operational state of the main body CB to the FNS CB.

(2) DTR (main body CB → FNS CB)
Transmission acknowledgement signal from the main body to FNS.

(3) RTS (main body CB → FNS CB)
Request-to-send signal from the main body to FNS.

(4) PS4 IN (PS4 → FNS CB)
This signal turns ON when the paper passes the FNS entrance and [L] is input.

(5) PS5 IN (PS5 → FNS CB)
This goes ON when the paper passes the stacker entrance and [L] is input.

(6) PS6 IN (PS6 → FNS CB)
This signal turns ON when the paper passes the main tray paper exit opening and [L] is input.

b. Output signals

(1) TXD (FNS CB → main body CB)
This is a serial data line to transmit the operational state of the main body CB to the FNS CB.

(2) RTS (FNS CB → main body CB)
Transmission acknowledgement signal from the main body to FNS.

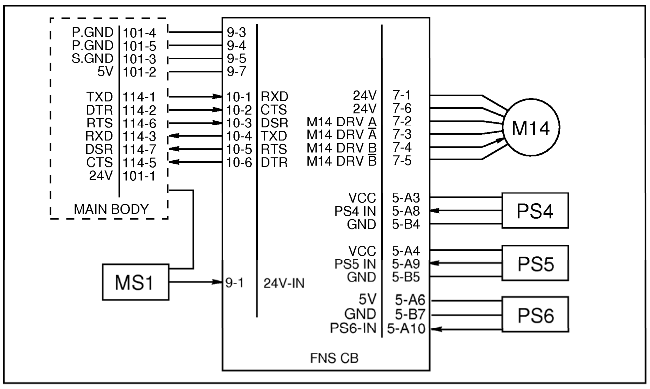
(3) DTR (FNS CB → main body CB)
Request-to-send signal from the main body to FNS.

(4) SD1 DRV (FNS CB → SD1)
SD1 (gate) drive use signal.
[H]: OFF
[L]: ON

(5) SD2 DRV (FNS CB → SD2)
SD2 (sub-tray) drive use signal.
[H]: OFF
[L]: ON

(6) SD5 DRV (FNS CB → SD5)
SD5 (by-pass) drive use signal.
[H]: OFF
[L]: ON

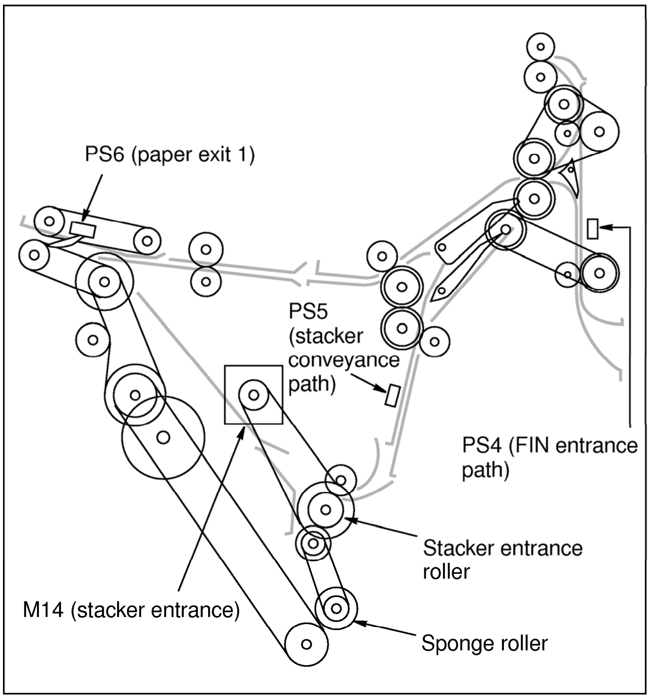
[7] M14 (Stacker Entrance) Control


P.GND 101-4
P.GND 101-5
S.GND 101-3
5V 101-2
TXD 114-1
DTR 114-2
RTS 114-6
RXD 114-3
DSR 114-7
CTS 114-5
24V 101-1
MAIN BODY
9-3
9-4
9-5
9-7
10-1 RXD
10-2 CTS
10-3 DSR
10-4 TXD
10-5 RTS
10-6 DTR
24V 7-1
24V 7-6
M14 DRV A 7-2
M14 DRV Ā 7-3
M14 DRV B 7-4
M14 DRV B̄ 7-5
M14
VCC 5-A3
PS4 IN 5-A8
GND 5-B4
PS4
VCC 5-A4
PS5 IN 5-A9
GND 5-B5
PS5
5V 5-A6
GND 5-B7
PS6-IN 5-A10
PS6
MS1
9-1
24V-IN
FNS CB

M14 (stacker entrance) drives the stacker entrance roller and the sponge roller. These rollers allow paper conveyance to the stacker, aligning the trailing ends of pages, and adjust the timing of staple standby.
FNS CB (FNS control board) controls M14.

1. Operation

The operation to convey paper to the stacker differs between paper of A4/B5 sizes and other sizes.


PS6 (paper exit 1)
PS5 (stacker conveyance path)
PS4 (FIN entrance path)
Stacker entrance roller
M14 (stacker entrance)
Sponge roller

a. Conveyance operation to the stacker (sizes other than A4/B5)

(1) M14 (stacker entrance) ON timing
M14 (stacker entrance) turns ON with input of ON signal by the start button and, rotates at high speed. Rotation switches into low speed in the specified time after the trailing edge of paper is detected by PS4 (FIN entrance path).
Then, in the specified time after the trailing edge of paper is detected by PS5 (stacker conveyance path), it returns to high speed rotation once again, entering standby state for conveyance of the following copy.
Through repetition of these operations, sheets of paper are carried successively to the stacker section.

(2) OFF timing of M14
M14 turns OFF in the specified time after PS6 (paper exit 1) detects the final batch stapled.

b. Conveyance operation to the stacker (A4/B5 sizes)

(1) Paper conveyance for the 1st set
A4/B5 sized sheets of paper for the 1st batch to staple are fed in the same way as those other than A4/B5 sized.

(2) Paper conveyance of the 1st copy of the 2nd and later sets
M14 turns OFF in the specified time after the trailing edge of this paper is detected by PS4 (FIN entrance path). The 1st copy, therefore, is held in standby in the by-pass track so that paper of the 2nd set is not conveyed to the stacker section before completing to staple the first set.

(3) Paper conveyance of the 2nd copy of the 2nd and later sets
M14 turns ON again in low speed in the specified time after the trailing edge of this paper is detected by PS4. Therefore, the 1st and 2nd copies are collectively conveyed to the stacker section as being piled up. In the specified time after PS5 (stacker conveyance path) detects the trailing edges of the 1st/2nd copies, M14 changes into high speed rotation, entering standby state for conveyance of the following copy.
The 3rd and later copies are conveyed to the stacker section in the same manner as that for the 1st.

c. Operation for justifying the trailing edge of the paper

The trailing edge of the paper conveyed to the stacker are aligned by the sponge roller one at a time.

2. Signals

a. Input signals

(1) TXD (main body CB → FNS CB)
This is a serial data line to transmit the operational state of the main body CB to the FNS CB.

(2) DTR (main body CB → FNS CB)
Transmission acknowledgement signal from the main body to FNS.

(3) RTS (main body CB → FNS CB)
Request-to-send signal from the main body to FNS.

(4) PS4 IN (PS4 → FNS CB)
This signal turns ON when paper passes the FNS entrance and [L] is output.

(5) PS5 IN (PS5 → FNS CB)
This signal turns ON when paper passes the stacker entrance and [L] is output.

(6) PS6 IN (PS6 → FNS CB)
This signal turns ON when the paper passes the main tray paper exit opening and [L] is input.

b. Output signals

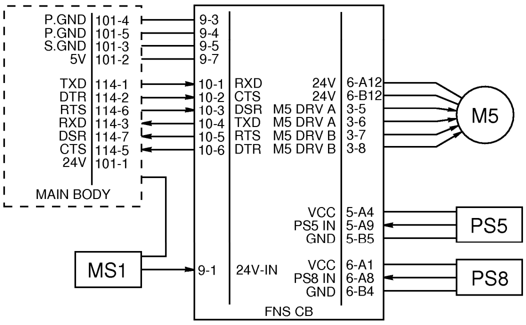
(1) TXD (FNS CB → main body CB)
This is a serial data line to transmit the operational state of the main body CB to the FNS CB.

(2) RTS (FNS CB → main body CB)
Transmission acknowledgement signal from the main body to FNS.

(3) DTR (FNS CB → main body CB)
Request-to-send signal from the main body to FNS.

(4) M14 DRV A, $\overline{A}$/M14 DRV B, $\overline{B}$ (FNS CB → M14)
M14 (stacker entrance) drive use signal.

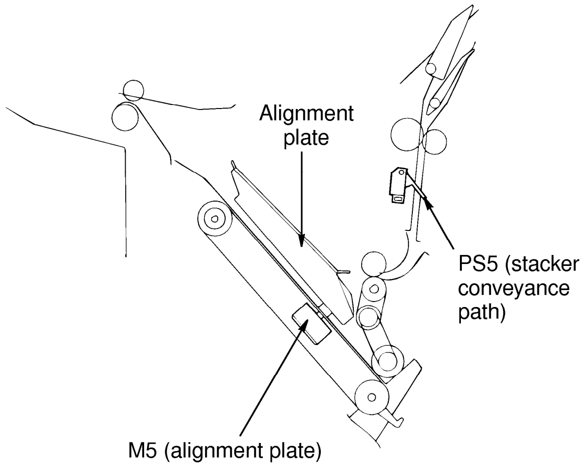
[8] M5 (Alignment Plate) Control


P.GND 101-4
P.GND 101-5
S.GND 101-3
5V 101-2
TXD 114-1
DTR 114-2
RTS 114-6
RXD 114-3
DSR 114-7
CTS 114-5
24V 101-1
MAIN BODY
MS1
9-3
9-4
9-5
9-7
10-1 RXD
10-2 CTS
10-3 DSR
10-4 TXD
10-5 RTS
10-6 DTR
9-1 24V-IN
24V 6-A12
24V 6-B12
M5 DRV A 3-5
M5 DRV A 3-6
M5 DRV B 3-7
M5 DRV B 3-8
VCC 5-A4
PS5 IN 5-A9
GND 5-B5
VCC 6-A1
PS8 IN 6-A8
GND 6-B4
FNS CB
M5
PS5
PS8

The alignment of the widthwise direction of paper conveyed to the stacker is performed by the opening and closing of the alignment plate by M5 (alignment plate). M5 is controlled by FNS CB (FNS control board).

1. Operation

In the initial operation, the alignment plate is stopped in the position where PS8 (alignment plate HP) is ON. After the specified time from when PS5 (stacker conveyance path) detected the trailing edge of the paper, M5 (alignment plate) rotates, and closes the alignment plate which opens after the specified time. This operation is performed for each page.


Alignment plate
PS5 (stacker conveyance path)
M5 (alignment plate)

2. Signals

a. Input signals

(1) TXD (main body CB → FNS CB)
This is a serial data line to transmit the operational state of the main body CB to the FNS CB.

(2) DTR (main body CB → FNS CB)
Transmission acknowledgement signal from the main body to FNS.

(3) RTS (main body CB → FNS CB)
Request-to-send signal from the main body to FNS.

(4) PS5 IN (PS5 → FNS CB)
This signal turns ON when the paper passes the stacker entrance and [L] is output.

(5) PS8 IN (PS8 → FNS CB)
When this signal detects alignment plate home position, [L] is output.

b. Output signals

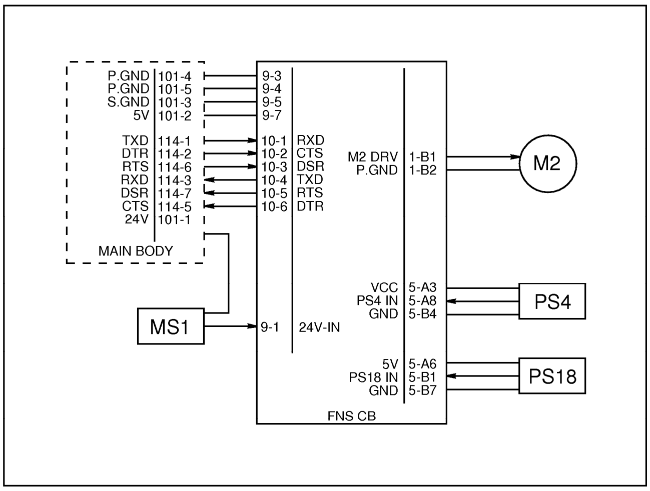
(1) TXD (FNS CB → main body CB)
This is a serial data line to transmit the operational state of the main body CB to the FNS CB.

(2) RTS (FNS CB → main body CB)
Transmission acknowledgement signal from the main body to FNS.

(3) DTR (FNS CB → main body CB)
Request-to-send signal from the main body to FNS.

(4) M5 DRV A/M5 DRV B (FNS CB → M5)
M5 (alignment plate) drive use signal.

[9] M2 (Roller Shift) Control


P.GND 101-4
P.GND 101-5
S.GND 101-3
5V 101-2
TXD 114-1
DTR 114-2
RTS 114-6
RXD 114-3
DSR 114-7
CTS 114-5
24V 101-1
MAIN BODY
9-3
9-4
9-5
9-7
10-1 RXD
10-2 CTS
10-3 DSR
10-4 TXD
10-5 RTS
10-6 DTR
M2 DRV 1-B1
P.GND 1-B2
M2
VCC 5-A3
PS4 IN 5-A8
GND 5-B4
PS4
MS1
9-1 24V-IN
5V 5-A6
PS18 IN 5-B1
GND 5-B7
PS18
FNS CB

Paper shift for sort and group modes is performed by M2 (roller shift). The control of M2 is performed by the FNS CB (FNS control board).

1. Operation

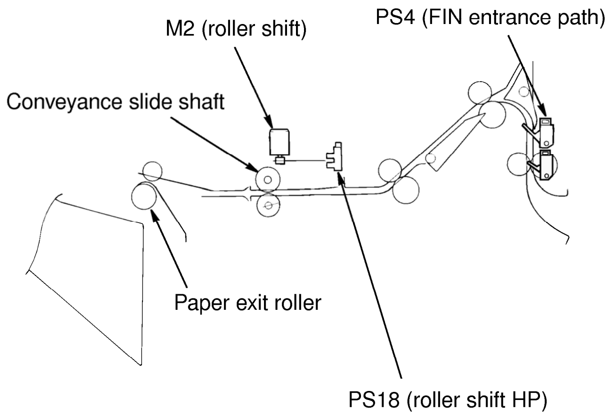
In the specified time after the trailing edge of the paper subject to shifting is detected by PS4 (FIN entrance path) in Sort/Group mode, M2 (roller shift) turns ON.

Rotation of M2 starts shifting of the conveyance slide shaft. The conveyance slide shaft is rotated by M4 (2nd conveyance) driving, which shifts as conveying paper.

When PS18 (roller shift HP) turns ON and detects completion of shifting of the conveyance slide shaft, M2 turns OFF and is brought to a stop.

In the specified time from turning OFF of PS4, M2 turns ON once again, returning the conveyance slide shaft to the original position. When PS18 turns OFF and the conveyance slide shaft returns fully to the original position, M2 is brought to a stop, where it waits for the next paper subject to shifting.

Through repetition of these operations, sheets of paper are shifted and conveyed to the paper exit roller.


M2 (roller shift)
PS4 (FIN entrance path)
Conveyance slide shaft
Paper exit roller
PS18 (roller shift HP)

2. Signals

a. Input signals

(1) TXD (main body CB → FNS CB)
This is a serial data line to transmit the operational state of the main body CB to the FNS CB.

(2) DTR (main body CB → FNS CB)
Transmission acknowledgement signal from the main body to FNS.

(3) RTS (main body CB → FNS CB)
Request-to-send signal from the main body to FNS.

(4) PS4 IN (PS4 → FNS CB)
This signal turns ON once the paper passes the FNS entrance and [L] is output.

(5) PS18 IN (PS18 → FNS CB)
Roller shift position detection signal.
[L] → [H]: Front position
[H] → [L]: Rear position

b. Output signals

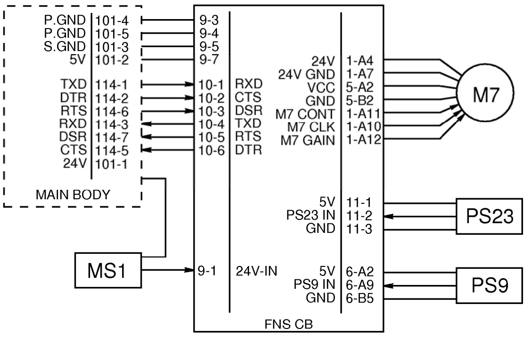
(1) TXD (FNS CB → main body CB)
This is a serial data line to transmit the operational state of the main body CB to the FNS CB.

(2) RTS (FNS CB → main body CB)
Transmission acknowledgement signal from the main body to FNS.

(3) DTR (FNS CB → main body CB)
Request-to-send signal from the main body to FNS.

(4) M2 DRV (FNS CB → M2)
M2 (roller shift) drive use signal.
[H]: M2 ON
[L]: M2 OFF

[10] M7 (Paper Exit Roller) Control


P.GND 101-4
P.GND 101-5
S.GND 101-3
5V 101-2
TXD 114-1
DTR 114-2
RTS 114-6
RXD 114-3
DSR 114-7
CTS 114-5
24V 101-1
MAIN BODY
MS1
9-3
9-4
9-5
9-7
10-1 RXD
10-2 CTS
10-3 DSR
10-4 TXD
10-5 RTS
10-6 DTR
9-1 24V-IN
24V 1-A4
24V GND 1-A7
VCC 5-A2
GND 5-B2
M7 CONT 1-A11
M7 CLK 1-A10
M7 GAIN 1-A12
5V 11-1
PS23 IN 11-2
GND 11-3
5V 6-A2
PS9 IN 6-A9
GND 6-B5
FNS CB
M7
PS23
PS9

Paper exit from the stacker is performed by the paper exit belt, and paper exit from FNS is performed by the paper exit roller. They are driven by M7 (paper exit roller). The control of M7 is performed by the FNS CB (FNS control board).

1. Operation

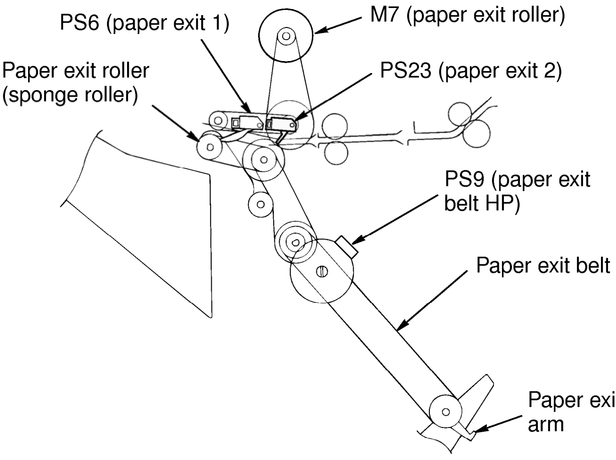
a. Sort/Group/Non-sort mode

M7 (paper exit roller) rotates by the ON signal from the main body start button.

PS23 (paper exit 2) detects the exiting of paper and if no finisher start signal comes from the main body, it will stop.

b. Staple mode

The staple mode commences rotation with completion of the stapling operation. It will stop when the PS9 (paper exit belt HP) turns ON.


PS6 (paper exit 1)
M7 (paper exit roller)
Paper exit roller (sponge roller)
PS23 (paper exit 2)
PS9 (paper exit belt HP)
Paper exit belt
Paper exit arm

2. Signals

a. Input signals

(1) TXD (main body CB → FNS CB)
This is a serial data line to transmit the operational state of the main body CB to the FNS CB.

(2) DTR (main body CB → FNS CB)
Transmission acknowledgement signal from the main body to FNS.

(3) RTS (main body CB → FNS CB)
Request-to-send signal from the main body to FNS.

(4) PS9 IN (PS9 → FNS CB)
This turns ON when detecting the home position of the paper exit belt and [L] is output.

(5) PS23 IN (PS23 → FNS CB)
This turns ON when the paper passes the FNS paper exit opening and [L] is output.

b. Output signals

(1) TXD (FNS CB → main body CB)
This is a serial data line to transmit the operational state of the main body CB to the FNS CB.

(2) RTS (FNS CB → main body CB)
Transmission acknowledgement signal from the main body to FNS.

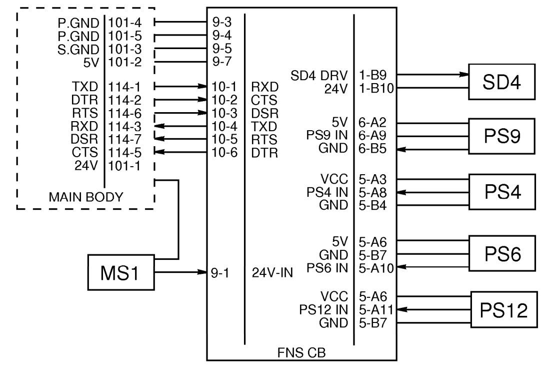
(3) DTR (FNS CB → main body CB)
Request-to-send signal from the main body to FNS.

(4) M7 CONT (FNS CB → M7)
M7 (paper exit roller) drive use signal.
[H]: OFF
[L]: ON

(5) M7 CLK (FNS CB → M7)
M7 (paper exit roller) speed adjustment clock signal.

(6) M7 GAIN (FNS CB → M7)
M7 (paper exit roller) speed gain signal.
[H]: 500 to 600 rpm
[L]: 600 to 1,650rpm

[11] SD4 (Paper Exit Opening) Control


P.GND 101-4
P.GND 101-5
S.GND 101-3
5V 101-2
TXD 114-1
DTR 114-2
RTS 114-6
RXD 114-3
DSR 114-7
CTS 114-5
24V 101-1
MAIN BODY
MS1
9-3
9-4
9-5
9-7
10-1 RXD
10-2 CTS
10-3 DSR
10-4 TXD
10-5 RTS
10-6 DTR
9-1 24V-IN
SD4 DRV 1-B9
24V 1-B10
5V 6-A2
PS9 IN 6-A9
GND 6-B5
VCC 5-A3
PS4 IN 5-A8
GND 5-B4
5V 5-A6
GND 5-B7
PS6 IN 5-A10
VCC 5-A6
PS12 IN 5-A11
GND 5-B7
FNS CB
SD4
PS9
PS4
PS6
PS12

Pressure between the exit rollers is done by SD4 (paper exit opening). The control of SD4 (paper exit opening) is performed by FNS CB (FNS control board).

1. Operation

Normally, a space is left between the paper exit rollers to avoid papers being stuck.
During paper exit, SD4 (paper exit opening) goes ON and tilts the paper exit roller, closing the space between the paper exit rollers and exiting paper.

a. SD4 ON timing

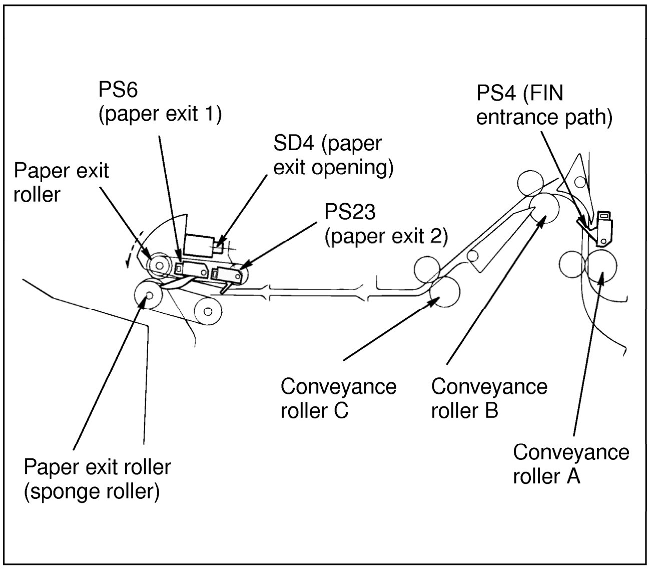
(1) During sort/group/non-sort mode
After the specified time from when PS4 (FIN entrance path) detects the trailing edge of the paper.

(2) During staple mode
After the specified time from when stapling is completed.

b. SD4 OFF timing

(1) During sort/group/non-staple mode
After the specified time from when PS23 (paper exit 2) detects the trailing edge of the paper.

(2) During staple mode
After the specified time from when PS6 (paper exit 1) detects the trailing edge of the paper stack.


PS6
(paper exit 1)
PS4 (FIN
entrance path)
SD4 (paper
exit opening)
Paper exit
roller
PS23
(paper exit 2)
Conveyance
roller C
Conveyance
roller B
Conveyance
roller A
Paper exit roller
(sponge roller)

2. Signals

a. Input signals

(1) TXD (main body CB → FNS CB)
This is a serial data line to transmit the operational state of the main body CB to the FNS CB.

(2) DTR (main body CB → FNS CB)
Transmission acknowledgement signal from the main body to FNS.

(3) RTS (main body CB → FNS CB)
Request-to-send signal from the main body to FNS.

(4) PS4 IN (PS4 → FNS CB)
This signal turns ON when the paper has passed the FNS entrance and [L] is output.

(5) PS6 IN (PS6 → FNS CB)
This signal turns ON when paper has passed through the paper exit opening of FNS and [L] is output.

(6) PS9 IN (PS9 → FNS CB)
This turns ON when detecting the home position of the paper exit belt and [L] is output.

(7) PS12 IN (PS12 → FNS CB)
This signal detects the opening and closing of the paper exit opening.
[H] → [L]: Closed position
[L] → [H]: Open position

(8) PS23 IN (PS23 → FNS CB)
This turns ON when paper has passed through the paper exit opening of FNS and [L] is output.

b. Output signals

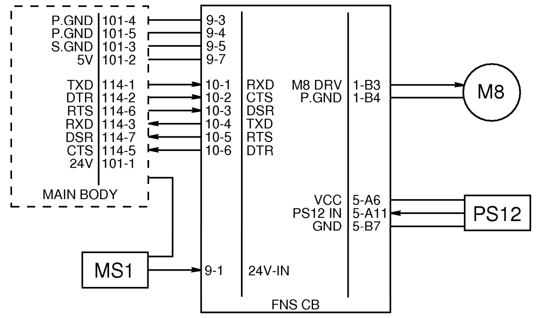
(1) TXD (FNS CB → main body CB)
This is a serial data line to transmit the operational state of the main body CB to the FNS CB.

(2) RTS (FNS CB → main body CB)
Transmission acknowledgement signal from the main body to FNS.

(3) DTR (FNS CB → main body CB)
Request-to-send signal from the main body to FNS.

(4) SD4 DRV (FNS CB → SD4)
SD4 (paper exit opening) drive use signal.
[H]: OFF
[L]: ON

[12] M8 (Paper Exit Opening) Control


P.GND
P.GND
S.GND
5V
TXD
DTR
RTS
RXD
DSR
CTS
24V
101-4
101-5
101-3
101-2
114-1
114-2
114-6
114-3
114-7
114-5
101-1
MAIN BODY
9-3
9-4
9-5
9-7
10-1
10-2
10-3
10-4
10-5
10-6
RXD
CTS
DSR
TXD
RTS
DTR
M8 DRV
P.GND
1-B3
1-B4
M8
VCC
PS12 IN
GND
5-A6
5-A11
5-B7
PS12
MS1
9-1
24V-IN
FNS CB

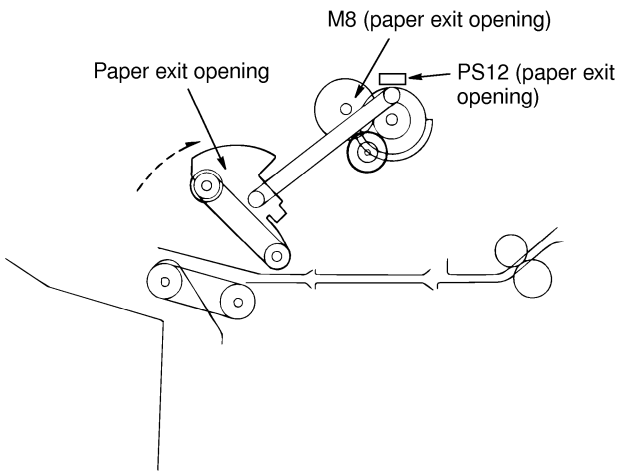
The opening and closing of the paper exit opening is performed by M8 (paper exit opening) via the link mechanism. M8 (paper exit opening) is controlled by FNS CB (FNS control board).

1. Operation

When stapling large sizes, M8 (paper exit opening) rotates with the ON signal from the main body start button and the paper exit opening is opened.

When stapling is finished, the paper exit opening is closed once by the staple completion signal from the FNS CB and the paper exited.

The opening and closing of the paper exit opening is detected by PS12 (paper exit opening).


M8 (paper exit opening)
Paper exit opening
PS12 (paper exit opening)

	When copy starts	When paper conveying to the stacker	When paper exited to the tray
Staple (Other than A4/B5)	Open	Open	Closed
Staple (A4/B5)	Closed	Closed	Closed
Off-set	Closed	—	Closed

2. Signals

a. Input signals

(1) TXD (main body CB → FNS CB)
This is a serial data line to transmit the operational state of the main body CB to the FNS CB.

(2) DTR (main body CB → FNS CB)
Transmission acknowledgement signal from the main body to FNS.

(3) RTS (main body CB → FNS CB)
Request-to-send signal from the main body to FNS.

(4) PS12 IN (PS12 → FNS CB)
This signal detects the opening and closing of the paper exit opening.
[H] → [L]: Closed position
[L] → [H]: Open position

b. Output signals

(1) TXD (FNS CB → main body CB)
This is a serial data line to transmit the operational state of the main body CB to the FNS CB.

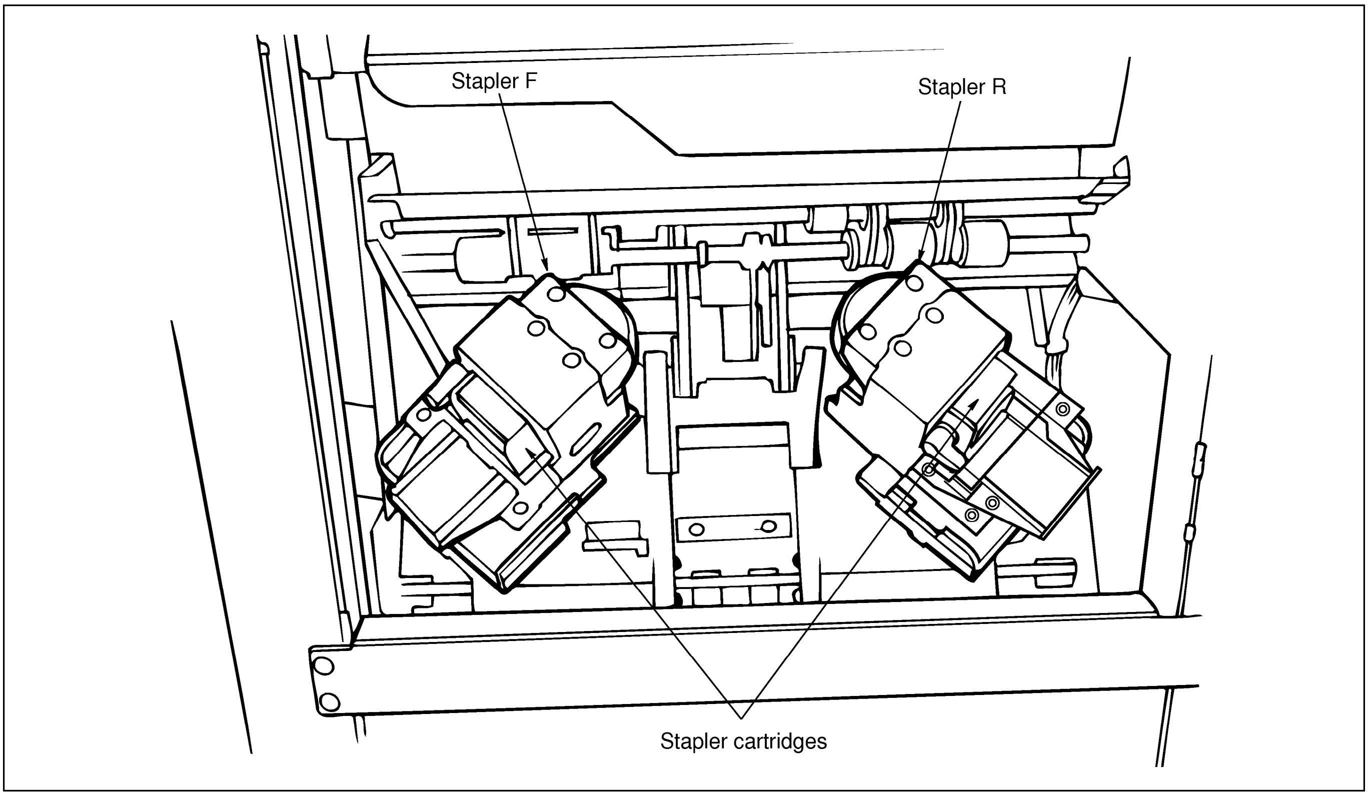
(2) RTS (FNS CB → main body CB)
Transmission acknowledgement signal from the main body to FNS.

(3) DTR (FNS CB → main body CB)
Request-to-send signal from the main body to FNS.

(4) M8 DRV (FNS CB → M8)
M8 (paper exit opening) drive use signal.
[H]: M8 ON
[L]: M8 OFF

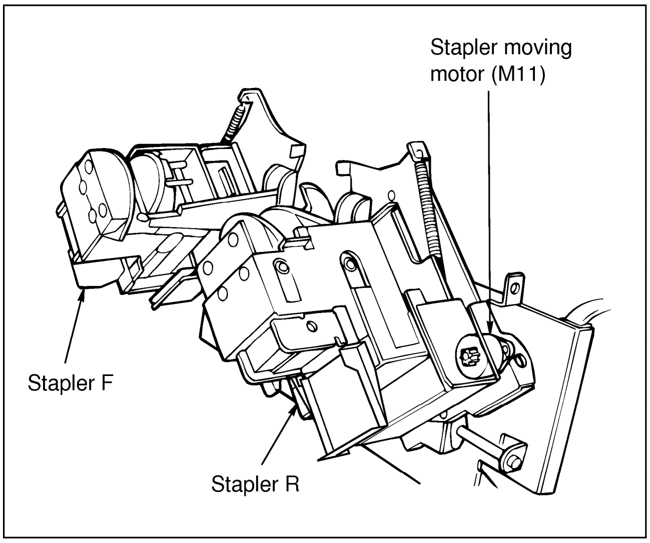
STAPLER UNIT

[1] Composition


Stapler F
Stapler R
Stapler cartridges

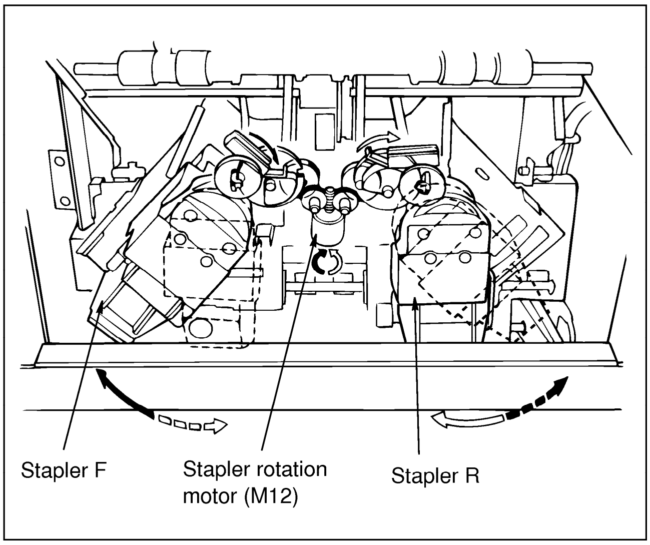
[2] Mechanism

1. Stapling in one place


Stapler moving motor (M11)
Stapler F
Stapler R

The stapler F and R moves to the stapling position.
Movement of the stapler F and R is performed by the stapler moving motor (M11).
Paper arranged within the stacker is stapled with either the stapler F or R.

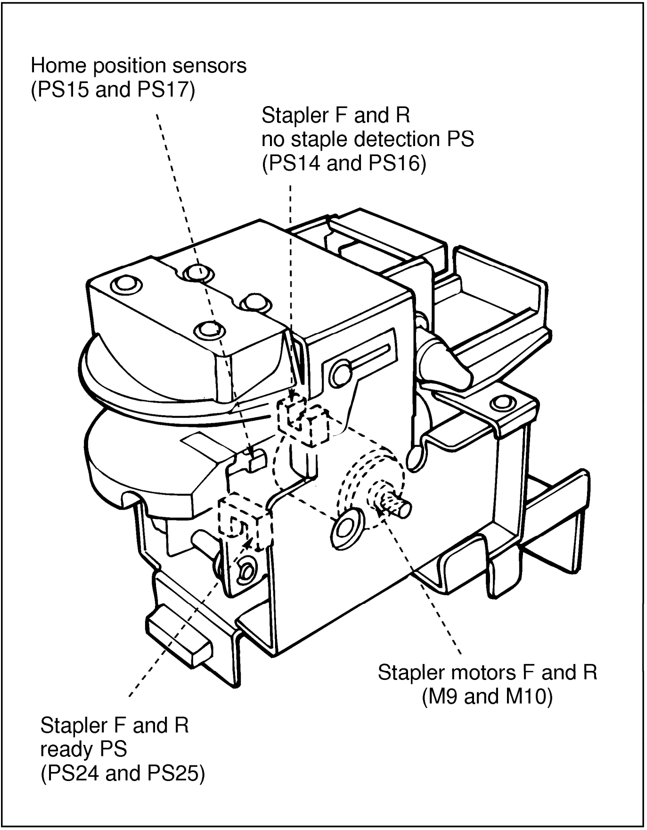
2. Stapling in two places


Stapler F
Stapler rotation motor (M12)
Stapler R

The stapler F and R is rotated so that it is parallel to the paper and stapling made in two places.
Rotation of the stapler is performed by the stapler rotation motor (M12).

3. Staple operation

The staple operation is driven by the F and R stapler motors (M9 and M10) and operated by the cam rotation.
The home position sensors (PS15 and PS17) detect that one operation has been performed.
Whether there are staples or not is detected by the stapler F and R no staple detection PS (PS14 and PS16).


Home position sensors
(PS15 and PS17)
Stapler F and R
no staple detection PS
(PS14 and PS16)
Stapler motors F and R
(M9 and M10)
Stapler F and R
ready PS
(PS24 and PS25)

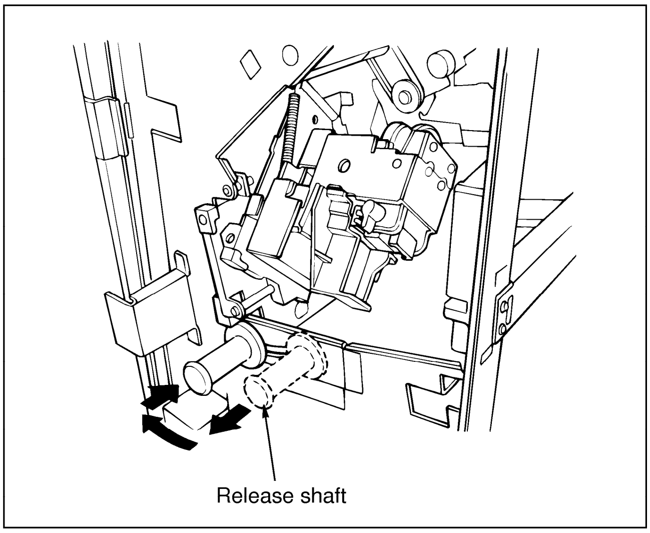
[3] Disassembly and Assembly

⚠ **CAUTION:**
Be sure that the power cord has been removed from the power outlet.

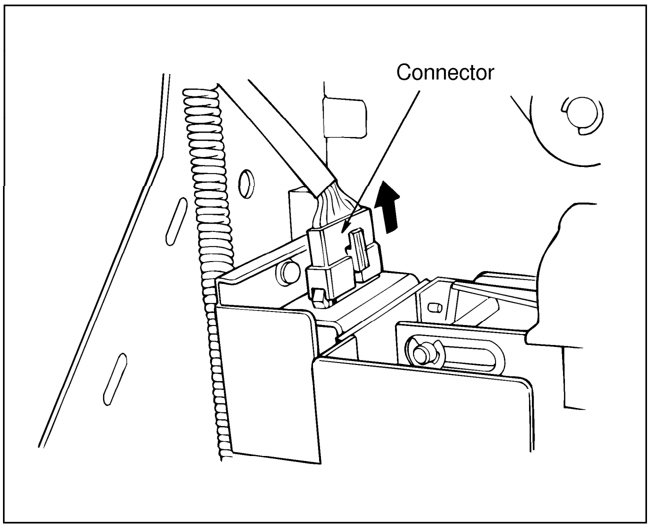
1. Removeing and installing the stapler

a. Procedure

(1) Open the front cover.
(2) Pull the release shaft and open the stapler section.

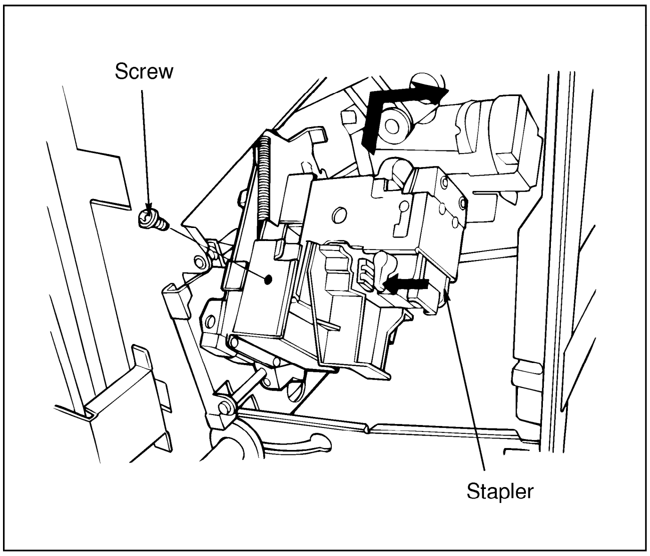

Release shaft

(3) Lower the stapler unit, and remove the connector from the stapler.



(4) Remove the set screw from the stapler.

(5) Lift the stapler and remove.


Screw
Stapler

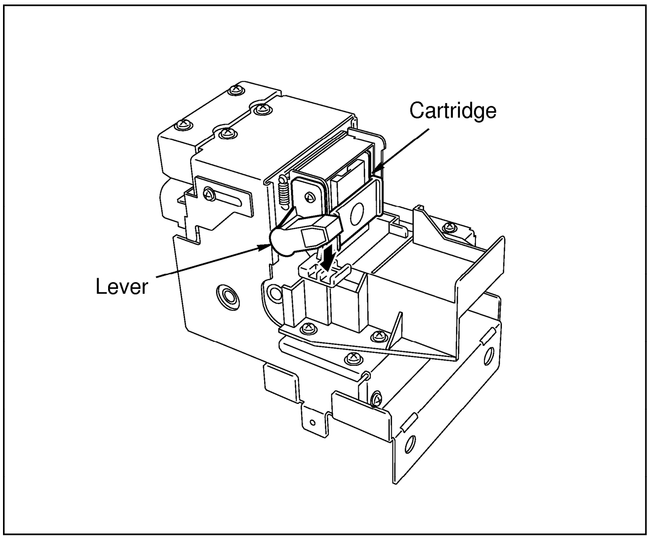
(6) Reinstall the stapler in the opposite sequence to removal.

2. Cleaning staple jams in the stapler

a. Procedure

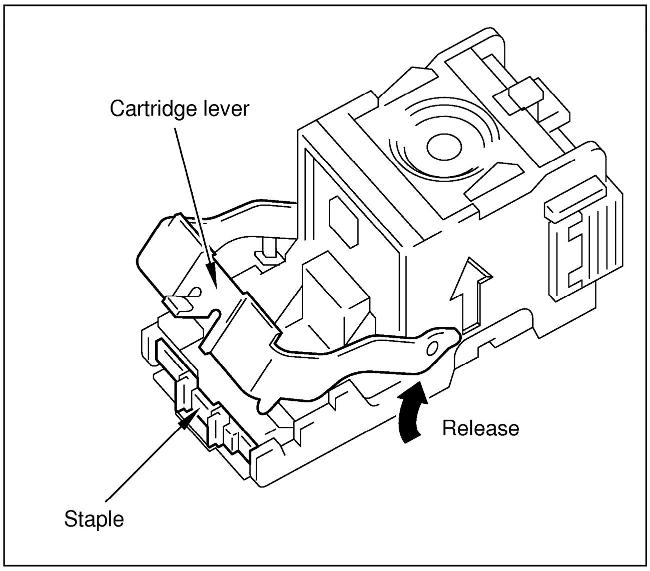
(1) Remove the stapler.

(2) Release the lever, and remove the cartridge from the stapler.


Cartridge
Lever

(3) Lift the cartridge lever.

(4) Remove the jammed staples.


Cartridge lever
Release
Staple

(5) Set the stapler in the opposite sequence to removal.

3. Removing and installing the stapler unit

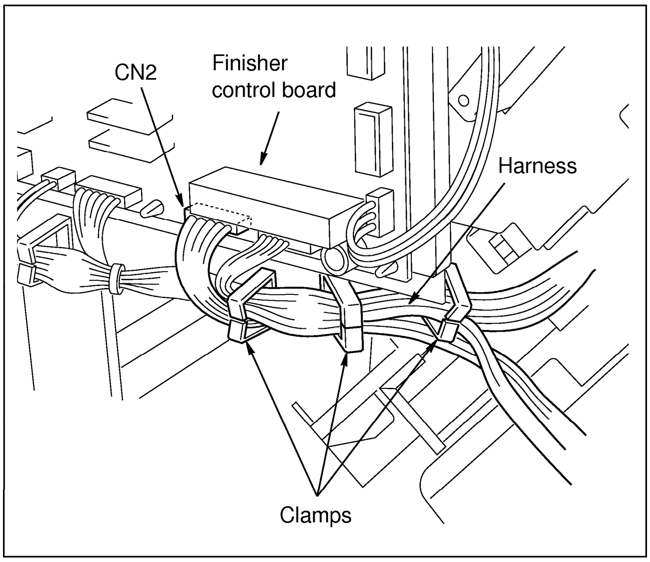
a. Procedure

(1) Remove the stapler.

(2) Close the stapler section.

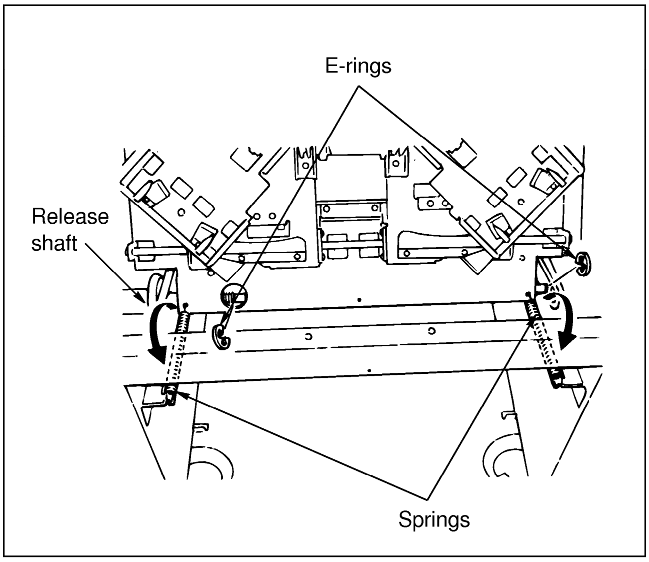
(3) Remove connector CN2 from the finisher control board.

(4) Open the clamp in three places and then remove the harness.

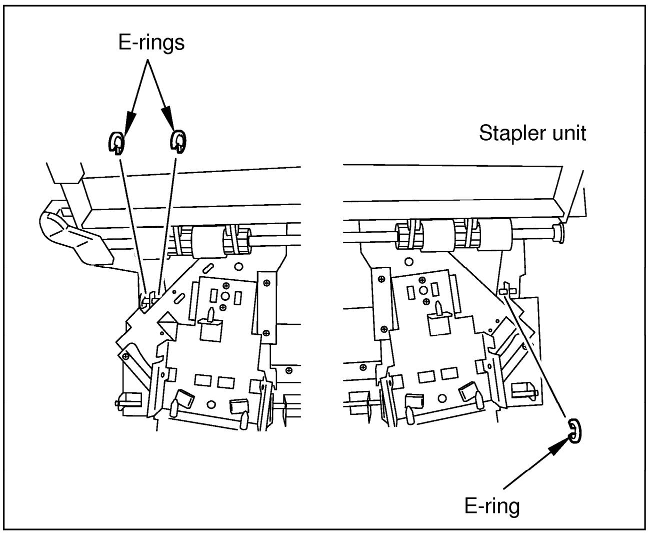

CN2
Finisher control board
Harness
Clamps

(5) Remove the two springs.

(6) Remove the two E-rings and then remove the release shaft.

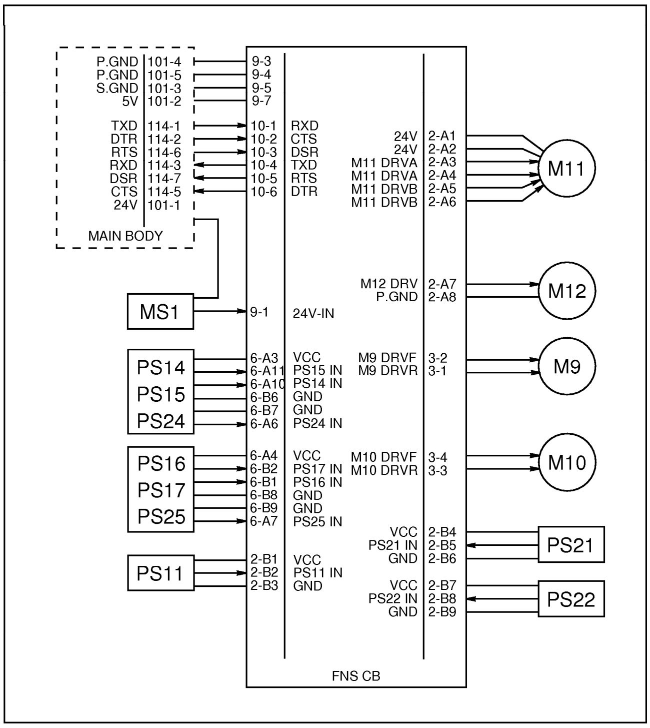

E-rings
Release shaft
Springs

(7) Remove the three E-rings from the shaft and remove the stapler unit.


E-rings
Stapler unit
E-ring

(8) Reinstall the stapler unit in the opposite sequence to removal.

[4] Stapler Control


P.GND 101-4 9-3
P.GND 101-5 9-4
S.GND 101-3 9-5
5V 101-2 9-7
TXD 114-1 10-1 RXD
DTR 114-2 10-2 CTS
RTS 114-6 10-3 DSR
RXD 114-3 10-4 TXD
DSR 114-7 10-5 RTS
CTS 114-5 10-6 DTR
24V 101-1
MAIN BODY
24V 2-A1
24V 2-A2
M11 DRVA 2-A3
M11 DRVA 2-A4
M11 DRVB 2-A5
M11 DRVB 2-A6
M11
M12 DRV 2-A7
P.GND 2-A8
M12
MS1
9-1 24V-IN
PS14
PS15
PS24
6-A3 VCC
6-A11 PS15 IN
6-A10 PS14 IN
6-B6 GND
6-B7 GND
6-A6 PS24 IN
M9 DRVF 3-2
M9 DRVR 3-1
M9
PS16
PS17
PS25
6-A4 VCC
6-B2 PS17 IN
6-B1 PS16 IN
6-B8 GND
6-B9 GND
6-A7 PS25 IN
M10 DRVF 3-4
M10 DRVR 3-3
M10
VCC 2-B4
PS21 IN 2-B5
GND 2-B6
PS21
PS11
2-B1 VCC
2-B2 PS11 IN
2-B3 GND
VCC 2-B7
PS22 IN 2-B8
GND 2-B9
PS22
FNS CB

M11 (stapler movement) and M12 (stapler rotation) move the stapler to the fixed position corresponding to the stapler mode, and paper is stapled by the rotation of M9/M10 (stapler R/F). PS15 (stapler R HP) and PS17 (stapler F HP) switch ON-OFF-ON, and detect one cycle of the stapler movement. These are controlled by the FNS CB (FNS control board).

1. Operation

a. Stapler one position movement control

Step motor M11 (stapler movement) turns ON by the ON signal from the main body start button and the stapler is moved to the fixed position that differs depending on paper size and then stops. When the staple one position mode is complete, M11 (stapler movement) moves the stapler and it stops in the PS11 (stapler movement HP) ON position (inside most).

b. Stapler two position movement control

Through the ON signal from the main body start button the stapler is rotated by M12 (stapler rotation) so that the stapler is parallel to the paper and then stops. At this time, PS22 (stapler rotation HP2) is ON. When the stapler two position mode is complete, M12 (stapler rotation) rotates the stapler and it stops in the PS21 (stapler rotation HP1) ON position (diagonal position).

c. Stapler movement control

Once the alignment plate is closed, M9 (stapler R)/M10 (stapler F) rotate and the staple push out plate drives the staples in. When PS15 (stapler R HP) and PS17 (stapler F HP) detects the home position (OFF-ON) and M9/M10 stop.

While the stapler is stapling, if within 500 ms from when PS15/PS17 turn OFF they do not come ON again it is judged as a staple jam. When the door is opened and closed, M9/M10 rotate in reverse and return to the home position (PS15/PS17 turn ON).

d. No staple detection control

PS14 (stapler R no staples) and PS16 (stapler F no staples) detect that there are no staples in the staple cartridge.

After supplying the staples, M9/M10 rotates until PS24 (stapler R ready) / PS25 (stapler F ready) goes ON by the staple, and prevents miss stapling.

2. Signals

a. Input signals

(1) TXD (main body CB → FNS CB)
This is a serial data line to transmit the operational state of the main body CB to the FNS CB.

(2) DTR (main body CB → FNS CB)
Transmission acknowledgement signal from the main body to FNS.

(3) RTS (main body CB → FNS CB)
Request-to-send signal from the main body to FNS.

(4) PS11 IN (PS11 → FNS CB)
This signal goes ON when the stapler movement position is in the home position and [L] is output.

(5) PS14 IN (PS14 → FNS CB)
If there are no staples detected in stapler R this signal turns ON and [L] is output.

(6) PS15 IN (PS15 → FNS CB)
When stapler R is in the home position this signal turns ON and [L] is output.

(7) PS16 IN (PS16 → FNS CB)
If there are no staples detected in stapler F, this signal turns ON and [L] is output.

(8) PS21 IN (PS21 → FNS CB)
When both stapler F and R are in diagonal position, [L] is output.

(9) PS22 IN (PS22 → FNS CB)
When both stapler F and R are in parallel position, [L] is output.

(10) PS17 IN (PS17 → FNS CB)
This signal goes ON when stapler F is in the home position and [L] is output.

(11) PS24 IN (PS24 → FNS CB)
When the stapler R has completed pre-feeding of staples and is held in ready state, [L] is output.

(12) PS25 IN (PS25 → FNS CB)
When the stapler F has completed pre-feeding of staples and is held in ready state, [L] is output.

b. Output signals

(1) TXD (FNS CB → main body CB)
This is a serial data line to transmit the operational state of the main body CB to the FNS CB.

(2) RTS (FNS CB → main body CB)
Transmission acknowledgement signal from the main body to FNS.

(3) DTR (FNS CB → main body CB)
Request-to-send signal from the main body to FNS.

(4) M9 DRV-F (FNS CB → M9)
M9 (stapler R) forward rotation drive use signal.

(5) M9 DRV-R (FNS CB → M9)
M9 (stapler R) reverse rotation drive use signal.

(6) M10 DRV-F (FNS CB → M10)
M10 (stapler F) forward rotation drive use signal.

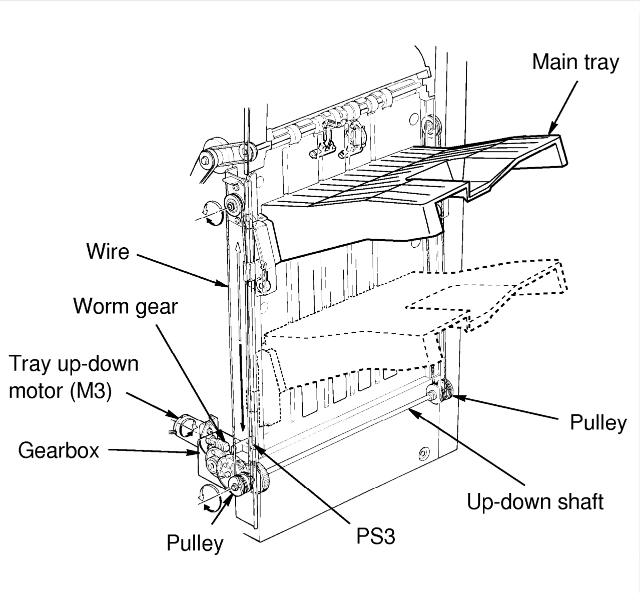
(7) M10 DRV-R (FNS CB → M10)
M10 (stapler F) reverse rotation drive use signal.

(8) M11 DRVA/M11 DRVB (FNS CB → M11)
M11 (stapler movement) drive use signal.

(9) M12 DRV (FNS CB → M12)
M12 (stapler rotation) drive use signal.
[H]: ON
[L]: OFF

MAIN TRAY SECTION

[1] Composition


Main tray
Wire
Worm gear
Tray up-down motor (M3)
Gearbox
Pulley
Pulley
Up-down shaft
PS3

[2] Mechanism

1. Main tray up-down

The up-down shaft is rotated via the gearbox by the worm gear on the tray up-down motor (M3). The main tray is raised and lowered by the wire which is fixed by the front and rear pulleys of the up-down shaft.

If the tray up-down motor (M3) rotates in the clockwise direction (looking from the worm side), the main tray will rise, and if the motor rotates in the anti-clockwise direction it will lower.

[3] Disassembly and Assembly

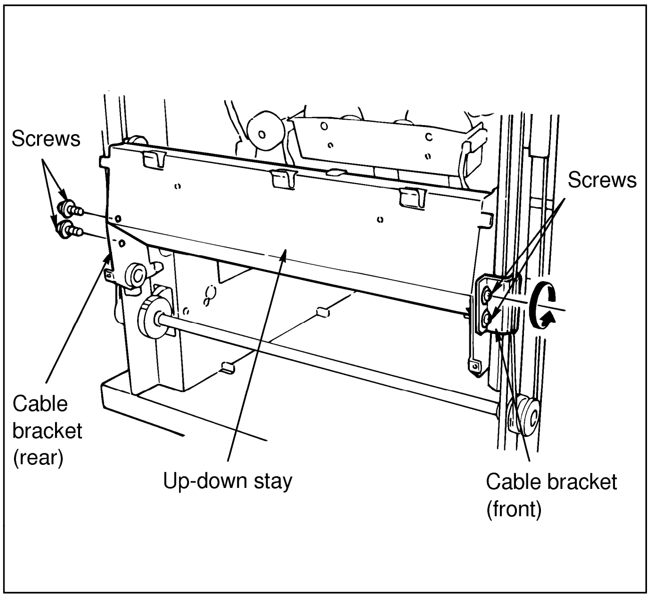
⚠ **CAUTION:**
Be sure that the power cord has been removed from the power outlet.

1. Removing and installing the up-down stay

a. Procedure

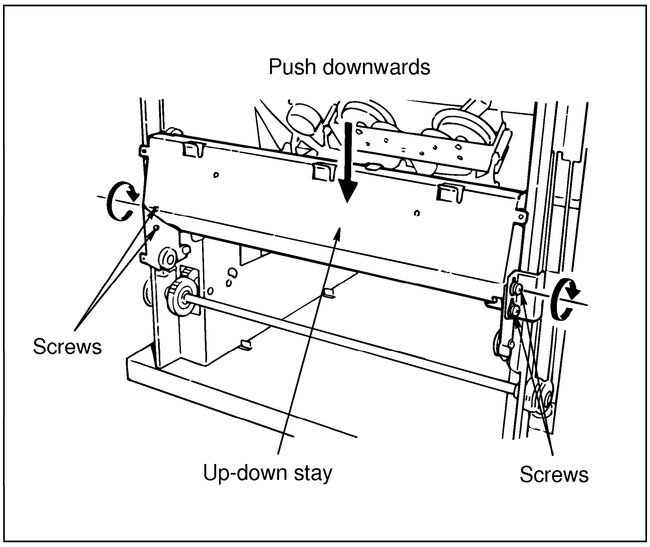
(1) Remove the following parts:
- rear cover
- front side cover
- main tray
- paper exit stopper plate
- up-down support plates (front and rear).

(2) Remove the 4 screws of the cable brackets (front and rear) and remove the up-down stay.


Screws
Screws
Cable bracket (rear)
Up-down stay
Cable bracket (front)

(3) Reinstall the up-down stay in the opposite sequence to removal.

CAUTION: Be sure to tighten the 4 screws of cable bracket while the up-down stay is pressed down.


Push downwards
Screws
Up-down stay
Screws

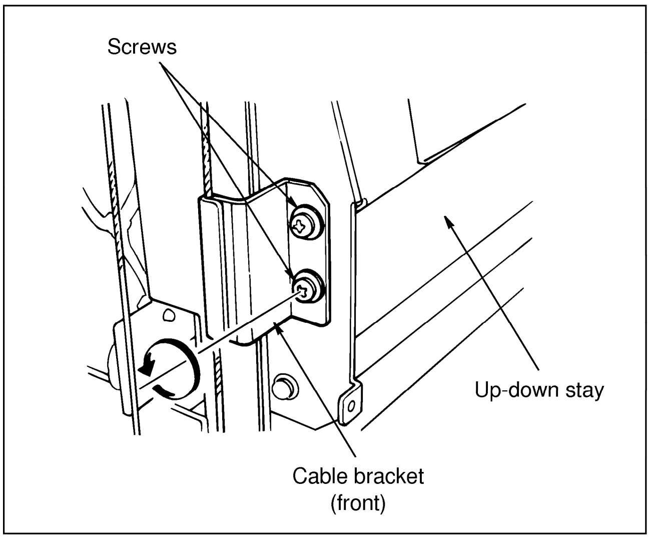
2. Exchanging the up-down cables

a. Procedure

CAUTION: The following procedure uses the front cable as an example. Fitting of the rear cable is symmetrical to the front.

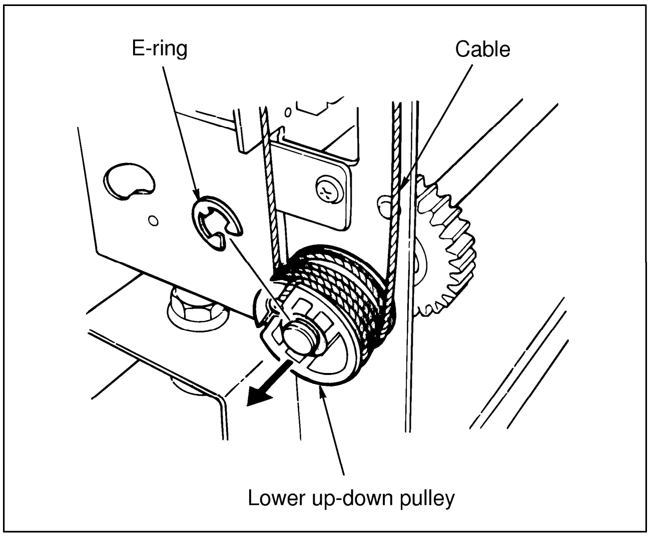
(1) Remove the following parts:
- rear cover
- front side cover
- main tray
- paper exit stopper plate
- up-down support plates (front and rear).

(2) Remove each of the 2 screws of the front and rear cable bracket, then remove the up-down stay.

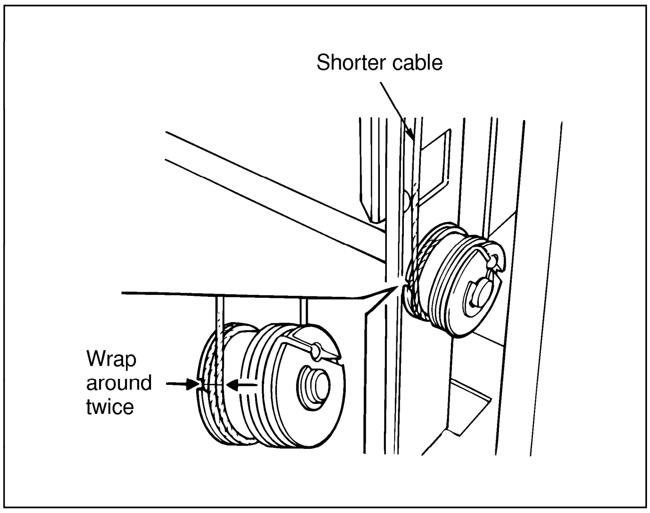

Screws
Up-down stay
Cable bracket
(front)

(3) Remove the E-ring, remove the lower up-down pulley and then replace the cable.

CAUTION: Take care not to lose the pin which is used inside the up-down pulley when removing the pulley.


E-ring
Cable
Lower up-down pulley

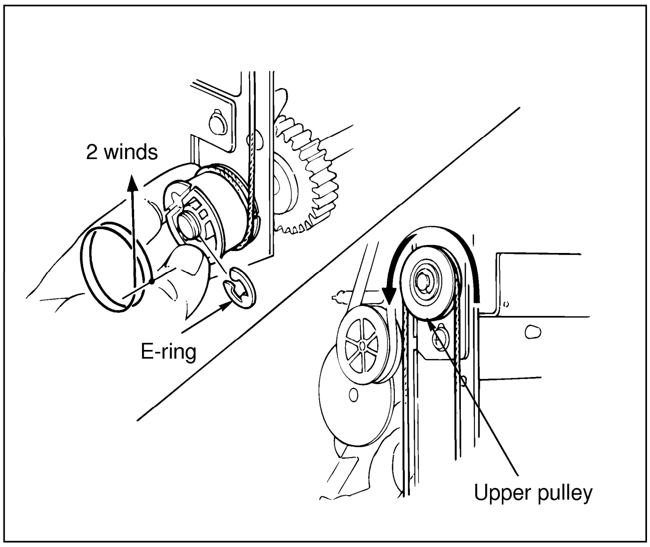
(4) Move the up-down stay so that the inner cable which is not removed (the shorter side from the cable bracket) is wound around twice.


Shorter cable
Wrap
around
twice

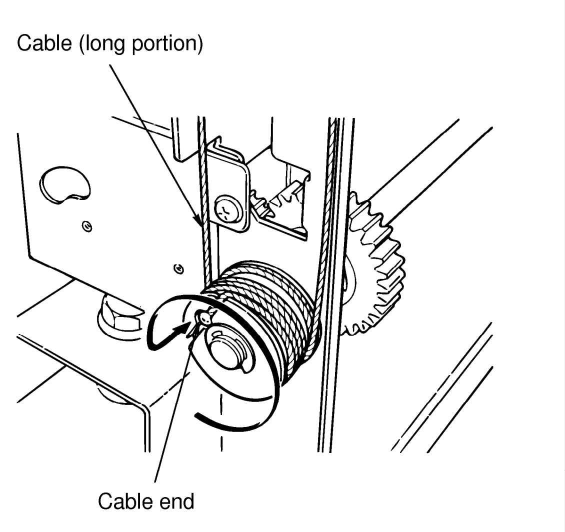
(5) Wrap the short side of the cable (from the cable bracket) being exchanged around the up-down pulley twice.

(6) Line the cable bracket position up with another cable bracket which was not removed and, after inserting the pin, install the up-down pulley with the E-ring.

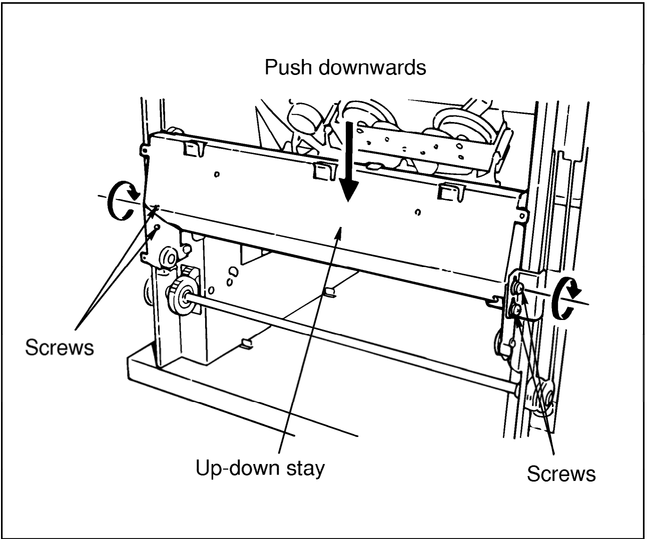
(7) Hook the cable onto the upper pulley.


2 winds
E-ring
Upper pulley

(8) Wrap the opposite side (long portion) of the cable around the up-down pulley from the inside to the outside and fix the cable end.

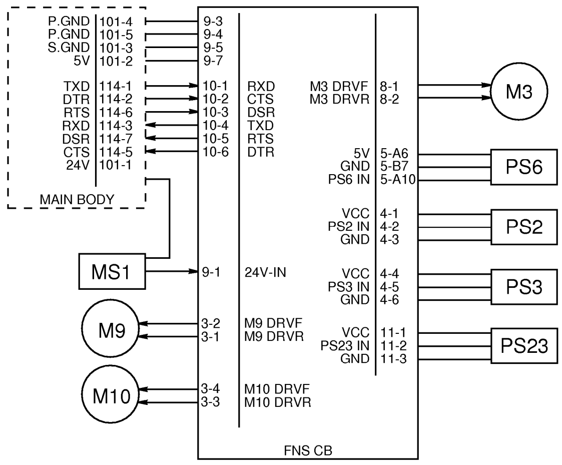

Cable (long portion)
Cable end

(9) When the up-down stay is pressed down, the 4 screws of the cable bracket will tighten.


Push downwards
Screws
Up-down stay
Screws

(10) Reinstall the up-down cable in the opposite sequence to removal.

[4] Main Tray Up-Down Control


P.GND 101-4
P.GND 101-5
S.GND 101-3
5V 101-2
TXD 114-1
DTR 114-2
RTS 114-6
RXD 114-3
DSR 114-7
CTS 114-5
24V 101-1
MAIN BODY
MS1
M9
M10
9-3
9-4
9-5
9-7
10-1 RXD
10-2 CTS
10-3 DSR
10-4 TXD
10-5 RTS
10-6 DTR
9-1 24V-IN
3-2 M9 DRVF
3-1 M9 DRVR
3-4 M10 DRVF
3-3 M10 DRVR
M3 DRVF 8-1
M3 DRVR 8-2
5V 5-A6
GND 5-B7
PS6 IN 5-A10
VCC 4-1
PS2 IN 4-2
GND 4-3
VCC 4-4
PS3 IN 4-5
GND 4-6
VCC 11-1
PS23 IN 11-2
GND 11-3
FNS CB
M3
PS6
PS2
PS3
PS23

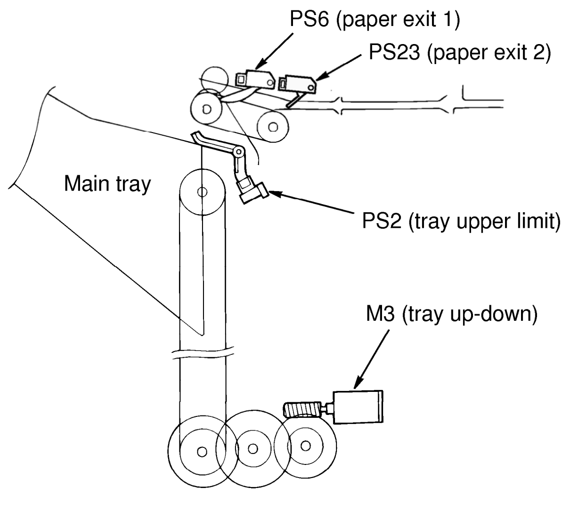
The main tray up-down operation is performed by the clockwise and anti-clockwise rotations of M3 (tray up-down).
M3 control is performed by FNS CB (FNS control board).

1. Operation

a. Sort/Group/Non-sort Mode

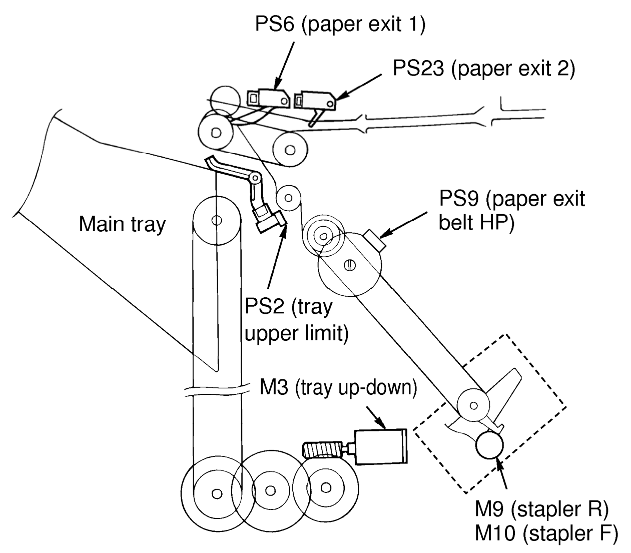
When paper passes PS23 (paper exit 2), M3 (tray up-down) will lower the main tray until PS2 (tray upper limit) turns OFF.

Next, M3 will raise the main tray until PS2 (tray upper limit) turns ON and stops.


PS6 (paper exit 1)
PS23 (paper exit 2)
Main tray
PS2 (tray upper limit)
M3 (tray up-down)

b. Staple mode

At the same time as when M9 (stapler R) or M10 (stapler F) turns ON, M3 lowers the main tray for the specified time, and raises the main tray until PS2 (tray upper limit) goes ON when PS6 (paper exit 1) detects the trailing edge of the paper stack.



2. Signal

a. Input signal

(1) TXD (main body CB → FNS CB)
This is a serial data line to transmit the operational state of the main body CB to the FNS CB.

(2) DTR (main body CB → FNS CB)
Transmission acknowledgement signal from the main body to FNS.

(3) RTS (main body CB → FNS CB)
Request-to-send signal from the main body to FNS.

(4) PS2 IN (PS2 → FNS CB)
When the main tray is in the upper limit position, this signal will turn ON and [H] will be input.

(5) PS3 IN (PS3 → FNS CB)
When the main tray is in the lower limit position, this signal will turn ON and [L] will be input.

(6) PS6 IN (PS6 → FNS CB)
When paper is exited this will turn ON and [L] will be input.

(7) PS15 IN (PS15 → FNS CB)
When stapler R is in the home position this signal turns ON and [L] is output.

(8) PS17 IN (PS17 → FNS CB)
This signal goes ON when stapler F is in the home position and [L] is output.

b. Output signals

(1) TXD (FNS CB → main body CB)
This is a serial data line to transmit the operational state of the main body CB to the FNS CB.

(2) RTS (FNS CB → main body CB)
Transmission acknowledgement signal from the main body to FNS.

(3) DTR (FNS CB → main body CB)
Request-to-send signal from the main body to FNS.

(4) M3 DRV-F (FNS CB → M3)
M3 (tray up-down) forward rotation drive use signal.

(5) M3 DRV-R (FNS CB → M3)
M3 (tray up-down) reverse rotation drive use signal.

(6) M9 DRV-F (FNS CB → M9)
M9 (stapler R) forward rotation drive use signal.

(7) M9 DRV-R (FNS CB → M9)
M9 (stapler R) reverse rotation drive use signal.

(8) M10 DRV-F (FNS CB → M10)
M10 (stapler F) forward rotation drive use signal.

(9) M10 DRV-R (FNS CB → M10)
M10 (stapler F) reverse rotation drive use signal.

FS-106 ADJUSTMENTS

[1] Sub-tray Gate Adjustment

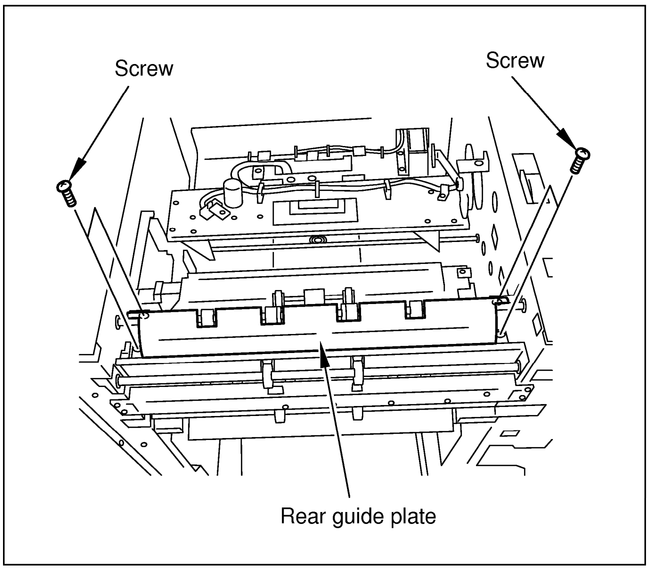
1. Tools used

- Phillips head screwdriver
- Scale

2. Preparation

(1) Remove the following parts:
  - rear cover
  - top cover

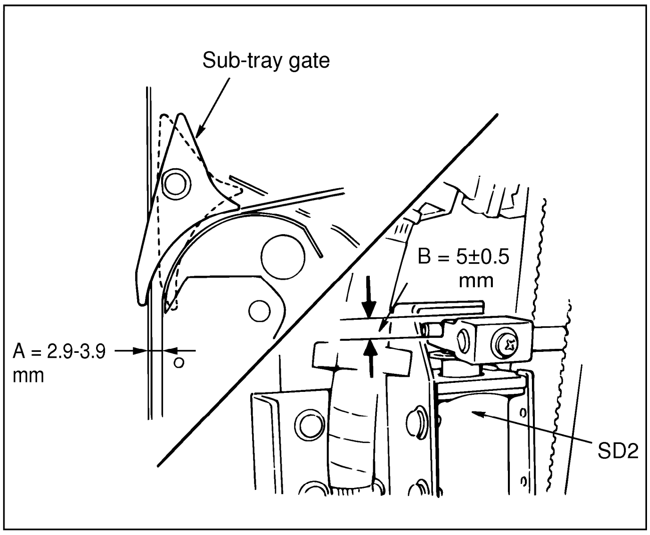
(2) Remove the 4 screws and rear guide plate.


Screw
Screw
Rear guide plate

3. Adjustment procedure

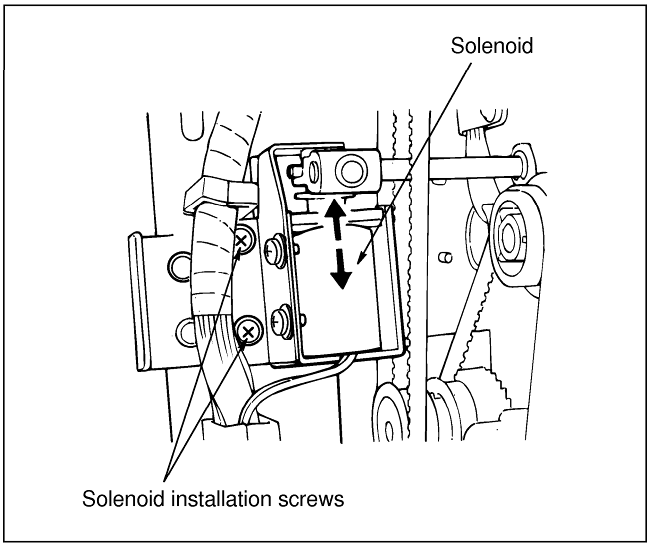
(1) When the sub-tray paper exit solenoid (SD2) is OFF, check whether the gap between the sub-tray gate and the guide plate is of the value stated below.
Value: A = 2.9 - 3.9 mm.

(2) When the sub-tray paper exit solenoid (SD2) is ON, check that the gap between the solenoid plunger and the bracket stopper is of the value stated below.
Value: B = 5 ± 0.5 mm.


Sub-tray gate
B = 5±0.5 mm
A = 2.9-3.9 mm
SD2

(3) If the value is outside that of the standard stated, loosen the two solenoid installation screws then operate and adjust the solenoid.

△1


Solenoid
Solenoid installation screws

(4) Tighten the solenoid screw.

(5) Reinstall the parts in the opposite sequence to removal.

MC-Service

[2] Adjusting the Paper Route Switching Gate

1. Tools used

- Phillips head screwdriver
- Scale

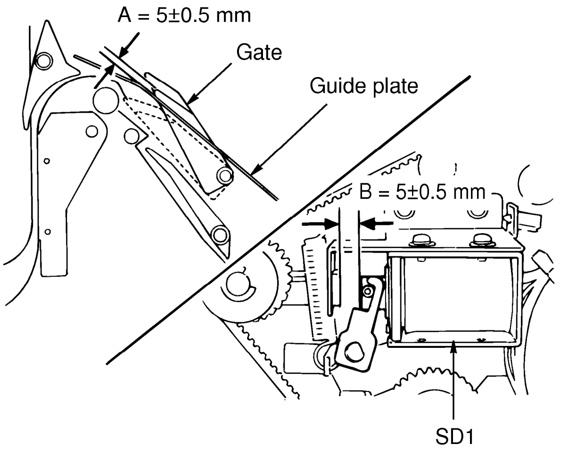
2. Preparation

(1) Remove the rear and top covers.

3. Adjustment procedure

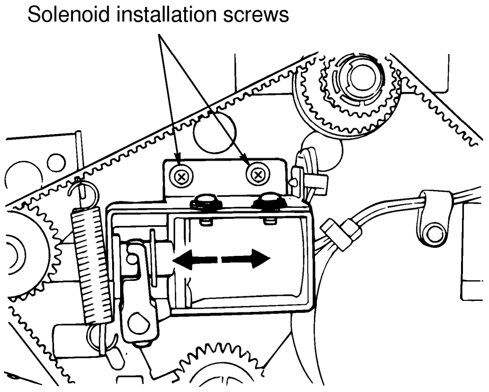
(1) When the gate solenoid (SD1) is ON, check that the distance between the shorter gate and the guide plate is of the value stated below.
Value: A = 5 ± 0.5 mm.

(2) When the gate solenoid (SD1) is ON, check that the gap between the solenoid plunger and the bracket stopper is of the value stated below.
Value: B = 5 ± 0.5 mm.



(3) Loosen the two solenoid installation screws then move and adjust the solenoid.

△1



(4) Tighten the solenoid screws.

(5) Reinstall the rear and top covers in the opposite sequence to removal.

[3] Adjusting the By-Pass Gate

1. Tools used

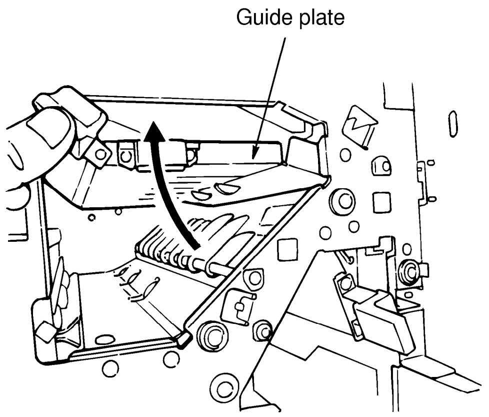
- Phillips head screwdriver
- Scale

2. Preparation

(1) Remove the rear cover.

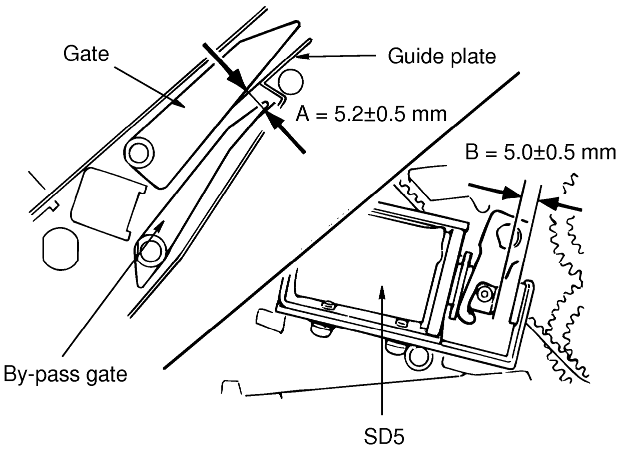
3. Adjustment procedure

(1) Open the front cover and open the guide plate.


Guide plate

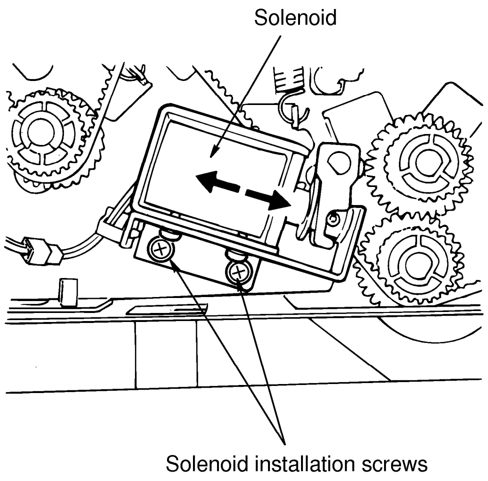
(2) When the by-pass solenoid (SD5) is OFF, check that the distance between the by-pass gate and guide plate is of the value stated below.
Value: A = 5.2 ± 0.5 mm.

(3) When the by-pass solenoid (SD5) is ON, check that the gap between the solenoid plunger and the bracket stopper is of the value stated below.
Value: B = 5.0 ± 0.5 mm.


Gate
Guide plate
A = 5.2±0.5 mm
B = 5.0±0.5 mm
By-pass gate
SD5

(4) Loosen the 2 solenoid installation screws then move and adjust the solenoid.

△1


Solenoid
Solenoid installation screws

(5) Tighten the solenoid screws.

(6) Reinstall the rear cover in the opposite sequence to removal.

[4] Adjusting the Shift Position

1. Tool used

- Phillips head screwdriver

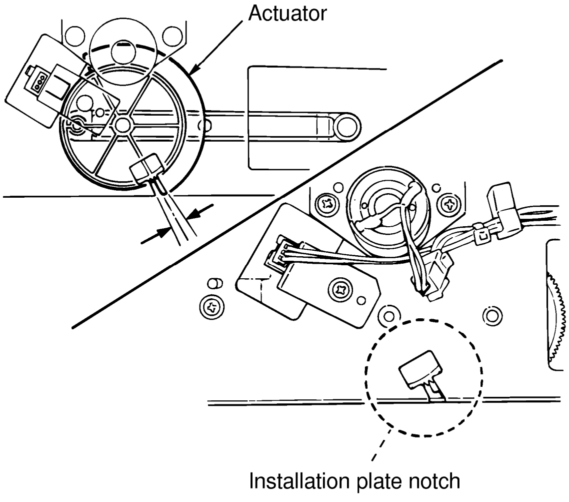
2. Preparation

(1) Remove the rear and top covers.

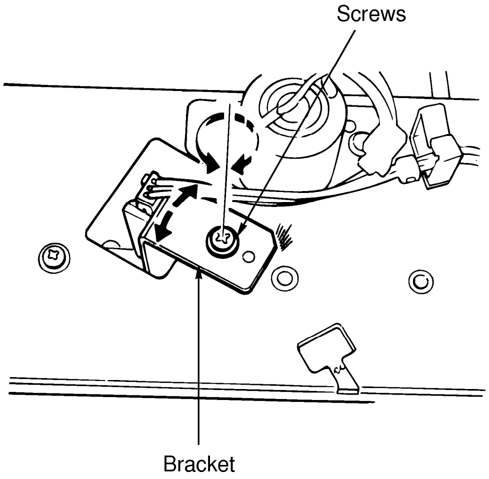
3. Adjustment procedure

(1) Turn the power OFF-ON-OFF.

(2) When the roller shift motor (M2) is OFF (home position), check that the roller shift HP (PS18) actuator lines up with the shift unit installation plate notch.



(3) Loosen the roller shift HP (PS18) bracket screws then move and adjust the bracket.



(4) Tighten the bracket screws.

(5) Reinstall the rear and top covers in the opposite sequence to removal.

[5] Adjusting the Open/Close Section of the Paper Exit Opening

1. Tool used

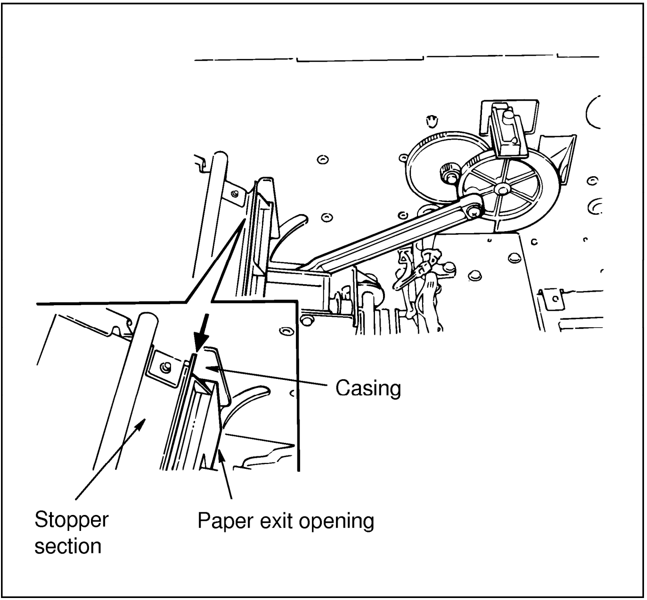
- Phillips head screwdriver

2. Preparation

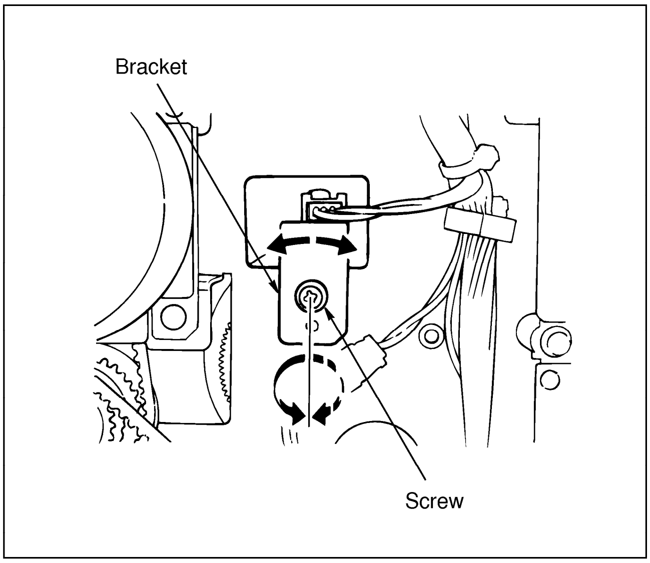
(1) Remove the rear and top covers.

3. Adjustment procedure

(1) After switching the power OFF-ON-OFF, when the paper exit opening is closed, check that the paper exit casing is touching the stopper section reliably.



(2) Loosen the paper exit opening detection PS (PS12) bracket screw then move and adjust the bracket.



(3) Tighten the bracket screws.

(4) Reinstall the rear and top covers in the opposite sequence to removal.

[6] Adjusting the Paper Exit Opening Solenoid

1. Tools used

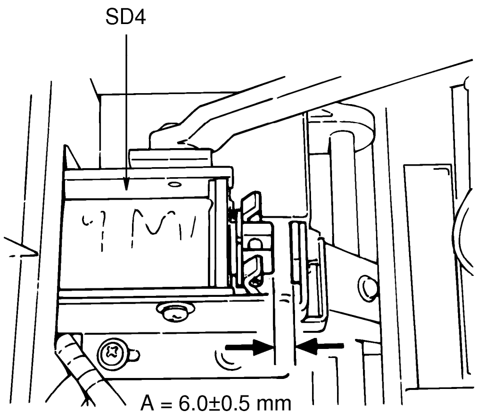
- Phillips head screwdriver
- Scale

2. Preparation

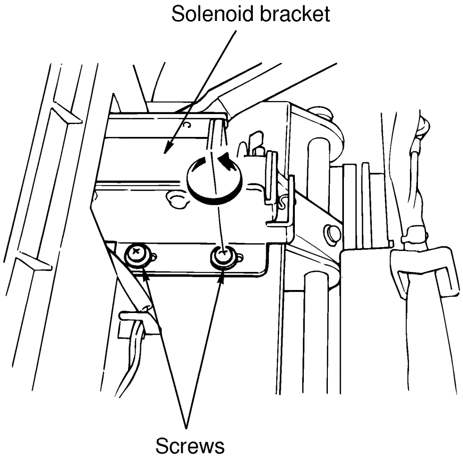
(1) Remove the rear and top covers.

3. Adjustment procedure

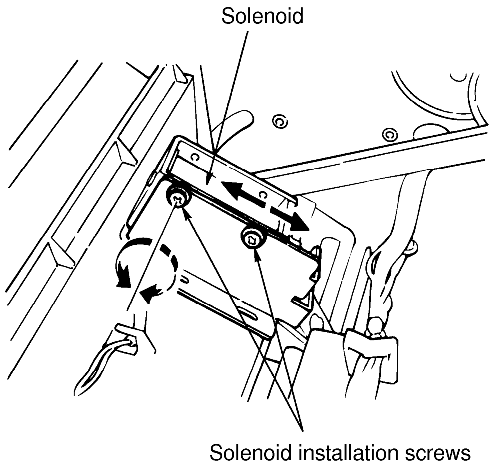
(1) When the paper exit opening solenoid (SD4) is ON, check that the gap between the solenoid plunger and the bracket stopper is of the value stated below.
Value: A = 6.0 ± 0.5 mm.


SD4
A = 6.0±0.5 mm

(2) Remove the 2 solenoid bracket screws and remove the solenoid together with the bracket.


Solenoid bracket
Screws

(3) Loosen the 2 solenoid installation screws then move and adjust the solenoid.


Solenoid
Solenoid installation screws

(4) Return the solenoid to the original position and tighten the solenoid bracket screws.

(5) Reinstall the rear and top covers in the opposite sequence to removal.

[7] Adjusting the Paper Exit Opening Lower Guide Plate

1. Tools used

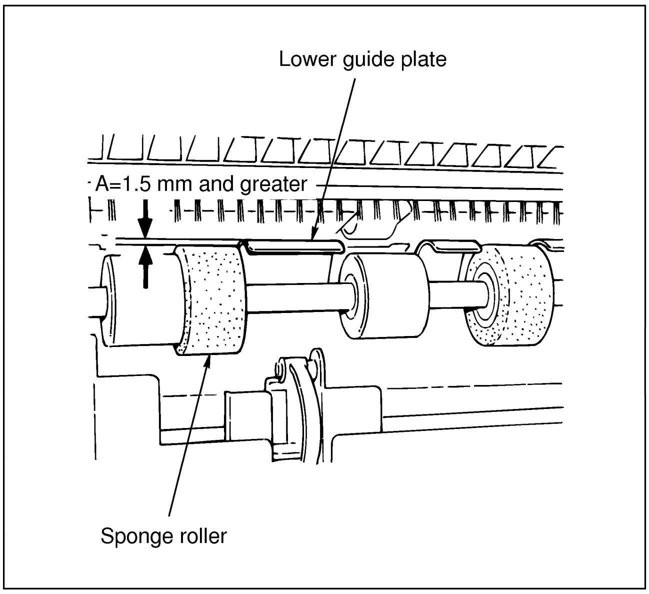
- Phillips head screwdriver
- Scale

2. Preparation

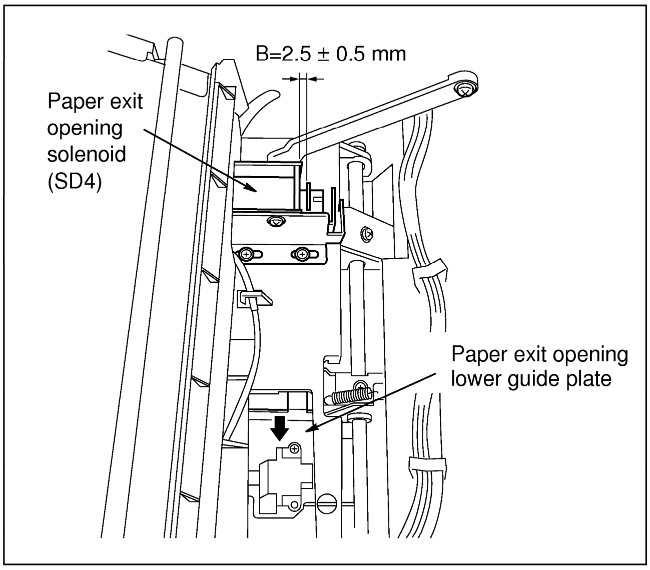
(1) Remove the rear and top covers.

3. Adjustment procedure

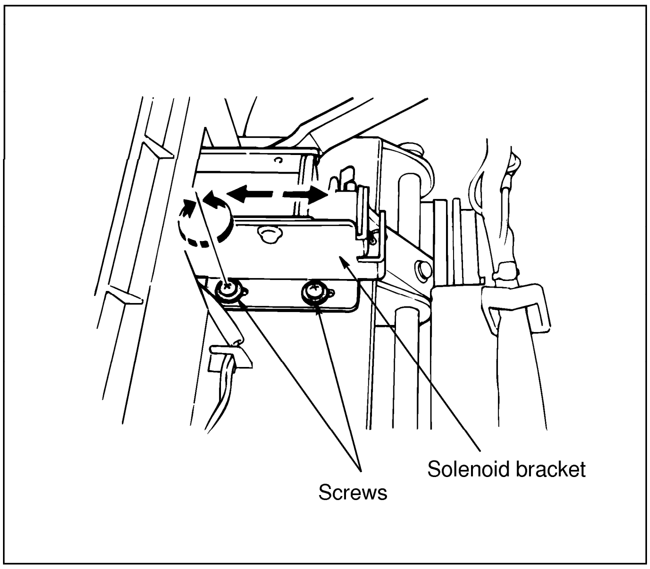
(1) When the paper exit opening solenoid (SD4) is OFF, check whether the value of the lower guide plate is greater than that of the sponge roller as stated below.
Value: A = 1.5 mm and greater.


Lower guide plate
A=1.5 mm and greater
Sponge roller

(2) By holding the lower guide plate of the paper exit opening by hand so that the upper/lower paper exit rollers be held in contact, confirm that the remaining stroke of the paper exit opening solenoid satisfies the specified value.
Value: B = 2.5 ± 0.5 mm


B=2.5 ± 0.5 mm
Paper exit opening solenoid (SD4)
Paper exit opening lower guide plate

(3) Loosening two bracket screws of the paper exit opening solenoid, adjust solenoid bracket position so as to satisfy the specified values A and B.


Solenoid bracket
Screws

(4) Tighten the solenoid bracket screws.

(5) Reinstall the rear and top covers in the opposite sequence to removal.

[8] Adjusting the Stacker Paper Exit Belt Tension

1. Tools used

- Phillips head screwdriver
- Tension guage or spring balance

2. Preparation

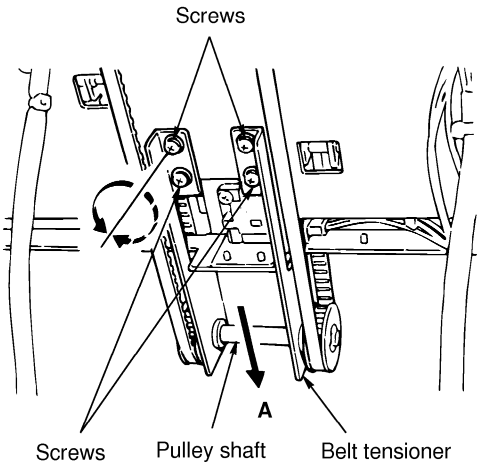
(1) Perform this adjustment before installing the unit if the belt tensioner for belt exchange, etc., is loose.

(2) Remove the following parts:
- front side cover
- main tray
- paper exit stopper plate
- up-down support plate (front and rear)

3. Adjustment procedure

(1) Loosen the 4 screws.

(2) Using a tension gauge or spring balance, pull the pulley shaft of the belt tensioner to the level of the value stated below, then tighten the screws.
Value: A = 2 kg.


Screws
A
Screws
Pulley shaft
Belt tensioner

(3) Reinstall the parts in the opposite sequence to removal.

[9] Adjusting the Alignment Plate Installation Position

1. Tools used

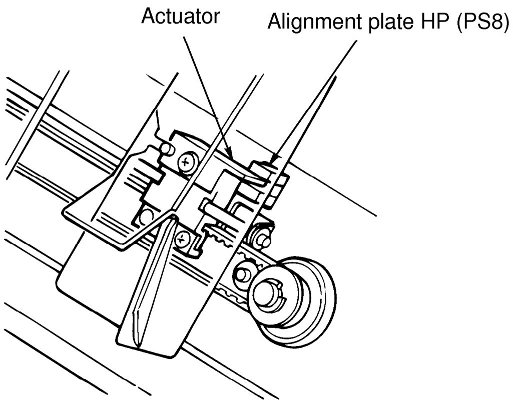
- Phillips head screwdriver
- Scale

2. Preparation

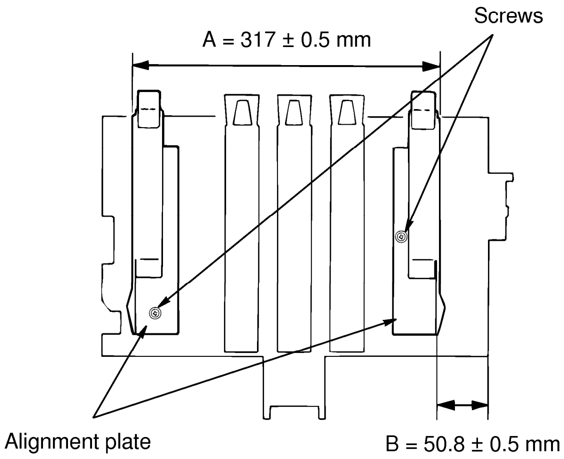
(1) Remove the stacker unit.

3. Adjustment procedure

(1) Put the alignment plate into home position. (Line the alignment plate drive belt actuator up with the alignment plate HP (PS8).)


Actuator
Alignment plate HP (PS8)

(2) Loosen the 2 screws and adjust the alignment plate gap A so that it is within the value stated below:
Value: A = 317 ± 0.5 mm
B = 50.8 ± 0.5 mm.


Screws
A = 317 ± 0.5 mm
Alignment plate
B = 50.8 ± 0.5 mm

(3) Tighten the screws.

[10] Adjusting the Alignment Plate Drive Timing Belt Tension

1. Tools used

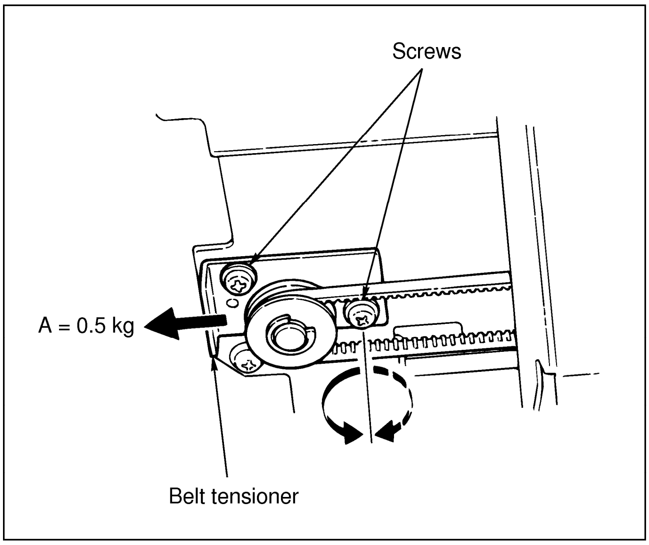
- Phillips head screwdriver
- Tension gauge or spring balance

2. Preparation

(1) Perform this adjustment before reinstalling the stacker unit when the alignment plate drive belt tensioner is loosened in order to exchange the belt, etc.

3. Adjustment procedure

(1) Loosen the 2 screws.
(2) Pull the belt tensioner to the value A stated below using a tension gauge or spring balance, then tighten the screws:
Value: A = 0.5 kg.



[11] Adjusting the Stapler Rotation Drive Section Installation

1. Tool used

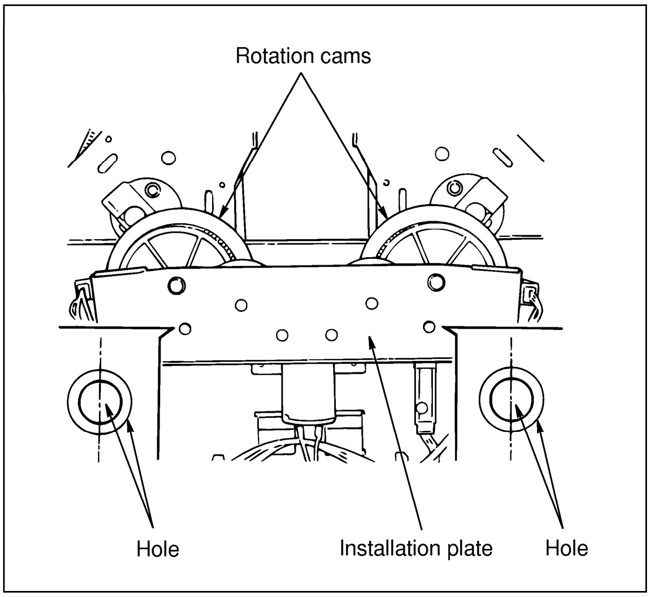
- Phillips head screwdriver

2. Preparation

Perform the following adjustment when the stapler unit rotation drive section is removed, before reinstalling the unit.

3. Adjustment procedure

(1) Install the rotation drive section into the stapler unit so that the rotation cam hole and the hole of the installation plate line up.



[12] Adjusting the Staple Position for 2 Position Stapling

1. Tools used

- Phillips head screwdriver
- Scale

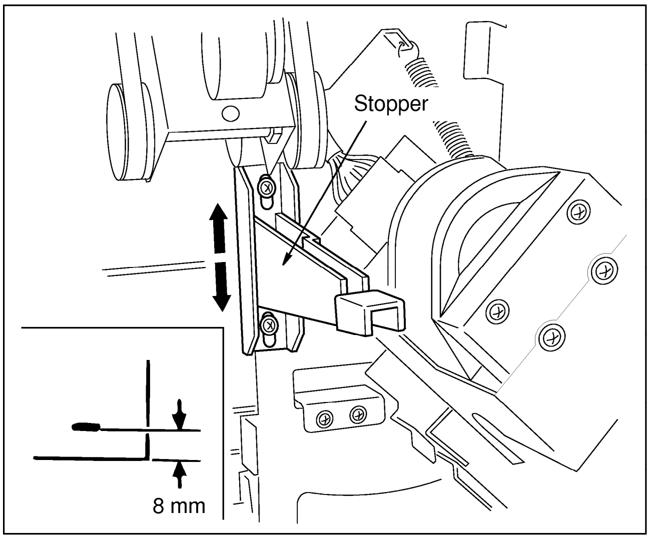
2. Preparation

Operate the stapling machanism in two positions and check that the staple position is 8 mm from the paper edge.

3. Adjustment procedure

(1) Loosen each of the 2 front and rear stopper screws and each of the stapler side stopper screws, and move and adjust the stopper.

(2) Tighten the stopper screws.



(3) Tighten the screws.

[13] Adjusting the Staple Slant for 2 Position Stapling

1. Tools used

- Phillips head screwdriver
- Scale

2. Preparation

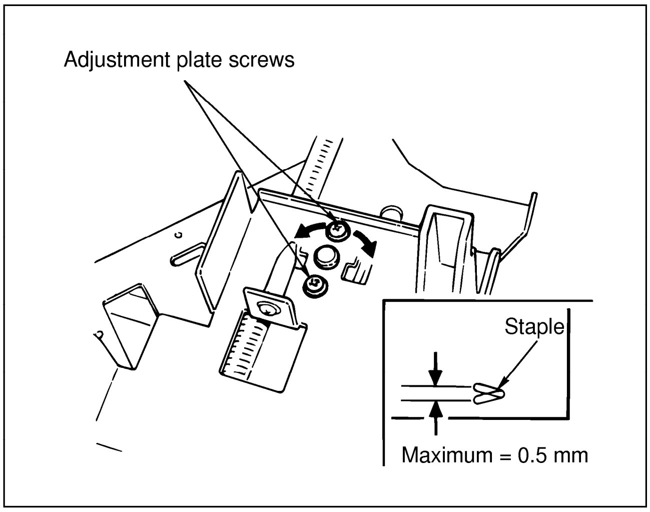
(1) Operate the stapler 2 position stapling mechanism and check that the slant of the staples is a maximum of 0.5 mm.

(2) Remove stapler R or F.

3. Adjustment procedure

(1) Loosen the 2 screws then move and adjust the adjustment plate.

(2) Tighten the screws.



[14] Adjusting the Staple Position for 1 Position Stapling

1. Tools used

- Phillips head screwdriver
- Scale

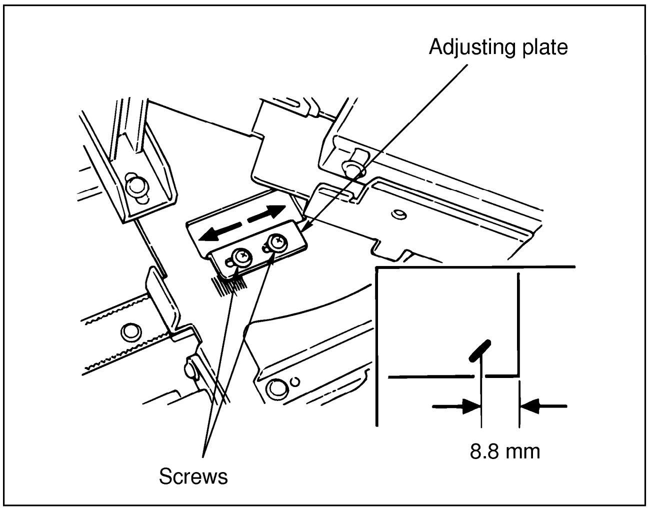
2. Preparation

Operate the stapler 1 position stapling mechanism and check that the distance to the centre of the staple position from the paper edge is 8.8 mm.

3. Adjustment procedure

(1) Loosen the 2 adjustment plate screws then move and adjust the adjustment plate.

(2) Tighten the screws.



[15] Adjusting the Tension of the Stapler Move Timing Belt

1. Tools used

- Phillips head screwdriver
- Tension gauge or spring balance

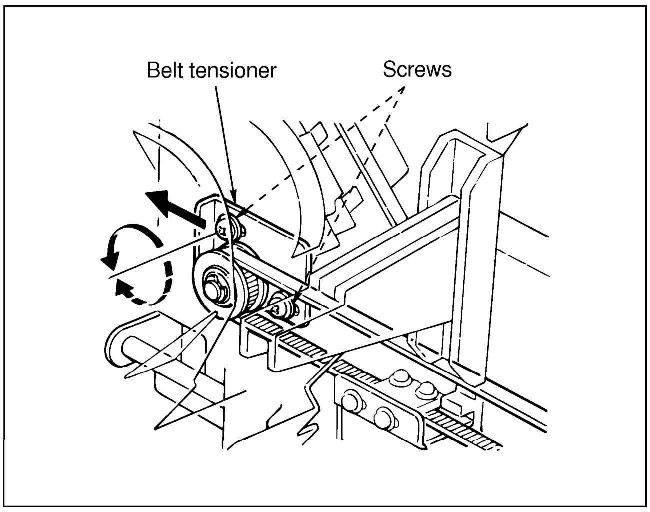
2. Preparation

(1) Remove the stapler unit and perform the following adjustment before reinstalling the unit when the stapler move belt tensioner has been loosened for exchanging the belt, etc.

3. Adjustment procedure

(1) Loosen the 2 belt tensioner screws.

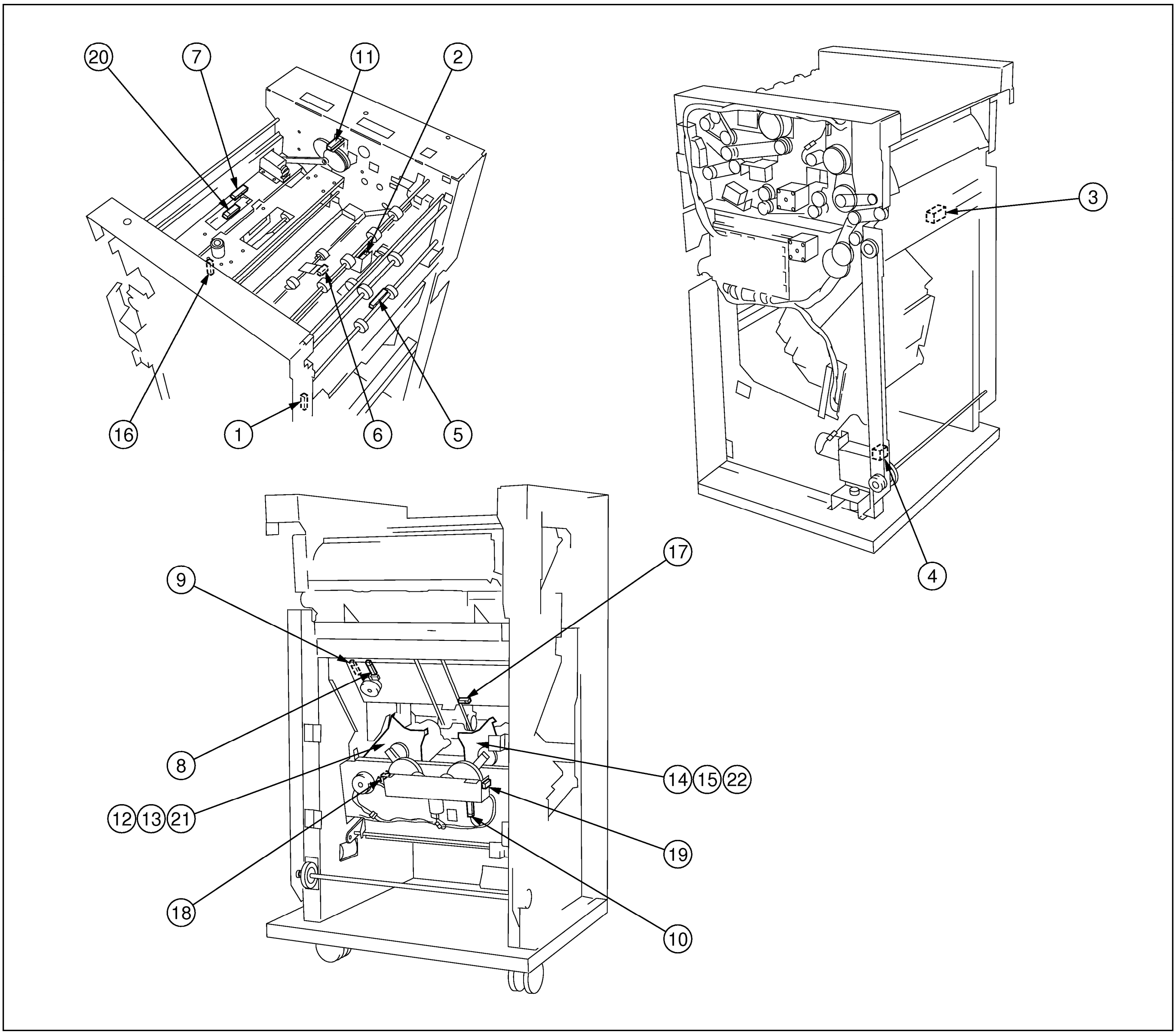
(2) Pull the belt tensioner to the level of value A stated below using a tension gauge or spring balance, and then tighten the screws.
Value: A = 0.5 kg.



2

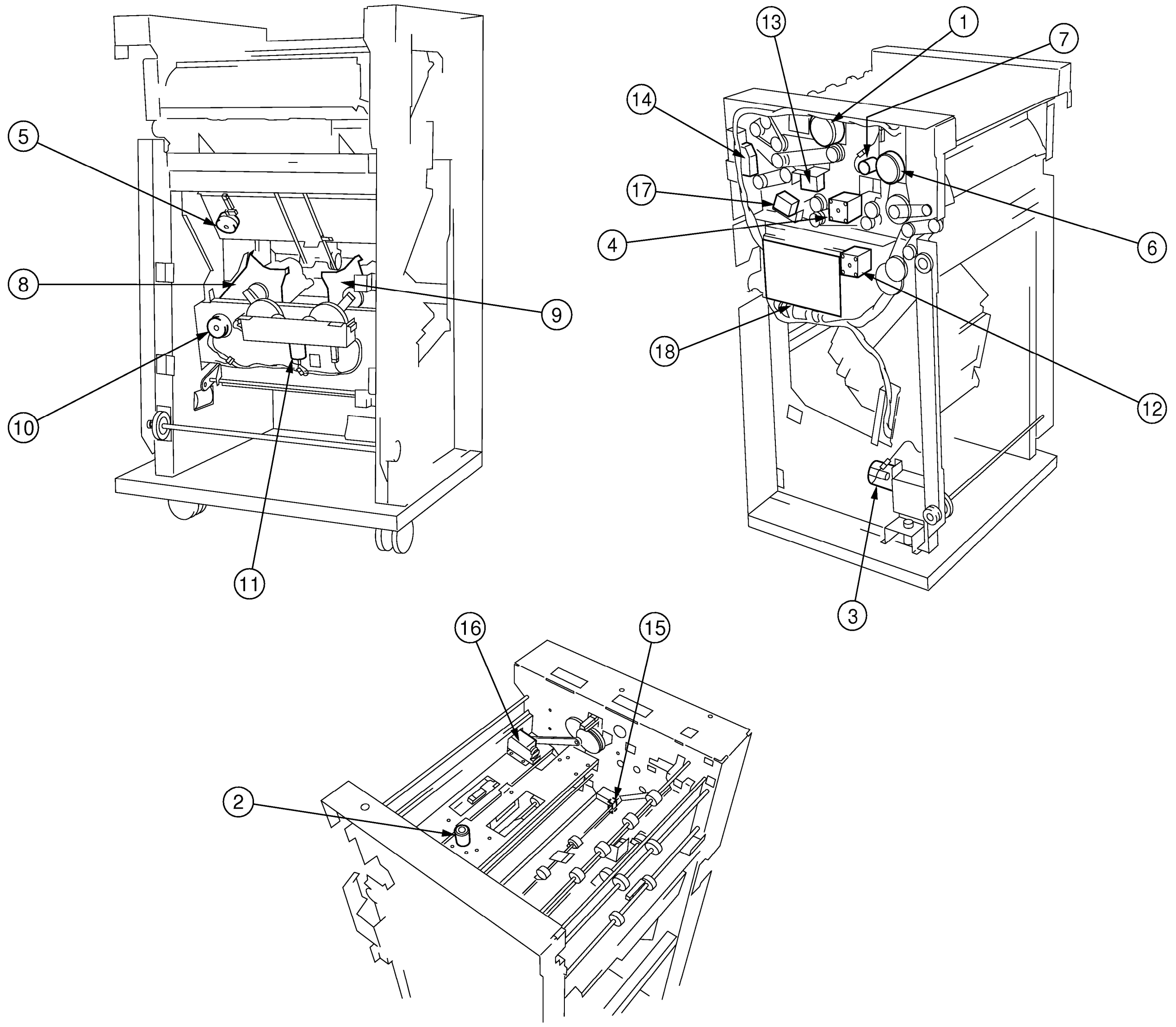
DIAGRAMS

FS-106 ELECTRICAL PARTS LAYOUT DRAWING



1. Switches and sensors

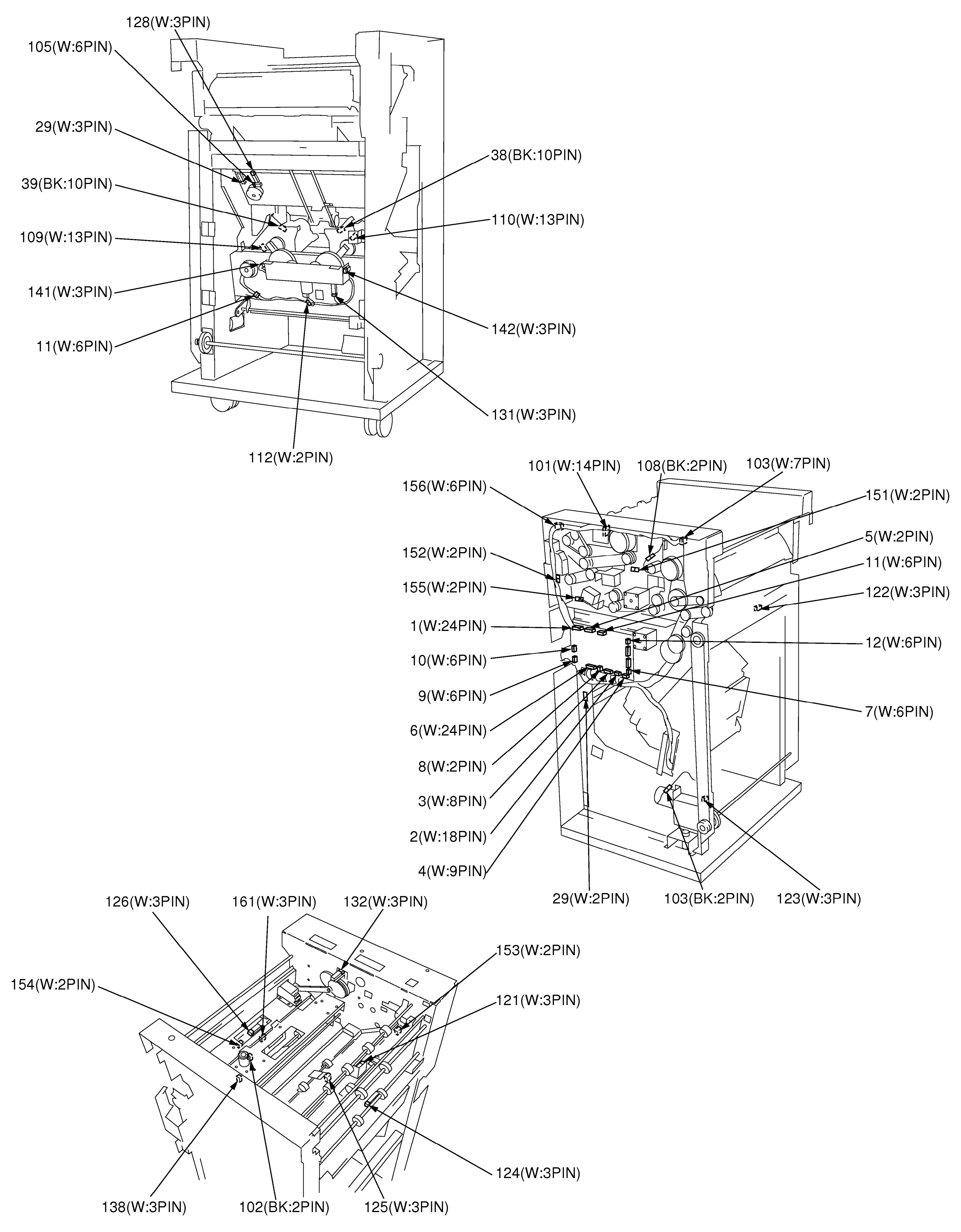
①	MS1	Interlock
②	PS1	Sub-tray upper limit detection PS
③	PS2	Tray upper limit detection PS
④	PS3	Tray lower limit detection PS
⑤	PS4	FIN entrance passage detection PS
⑥	PS5	Stacker conveyance passage detection PS
⑦	PS6	Paper exit 1 detection PS
⑧	PS8	Alignment plate HP detection PS
⑨	PS9	Paper exit belt HP detection PS
⑩	PS11	Staple movement HP detection PS
⑪	PS12	Paper exit opening detection PS
⑫	PS14	No R staple detection PS
⑬	PS15	R staple HP detection PS
⑭	PS16	No F staple detection PS
⑮	PS17	F staple HP detection PS
⑯	PS18	Roller shift HP detection PS
⑰	PS20	Stacker no paper detection PS
⑱	PS21	Staple rotation HP1 detection PS
⑲	PS22	Staple rotation HP2 detection PS
⑳	PS23	Paper exit 2 detection PS
㉑	PS24	Staple R ready PS
㉒	PS25	Staple F ready PS



2. Motors, solenoids and board

①	M1	1st conveyance motor
②	M2	Roller shift motor
③	M3	Tray up-down motor
④	M4	2nd conveyance motor
⑤	M5	Alignment plate motor
⑥	M7	Paper exit roller motor
⑦	M8	Paper exit opening motor
⑧	M9	Stapler R motor
⑨	M10	Stapler F motor
⑩	M11	Stapler movement motor
⑪	M12	Stapler rotation motor
⑫	M14	Stacker entrance motor
⑬	SD1	Gate solenoid
⑭	SD2	Sub-tray paper exit solenoid
⑮	SD3	Decompression solenoid
⑯	SD4	Paper exit opening solenoid
⑰	SD5	By-pass solenoid
⑱	FNS CB	FNS control board

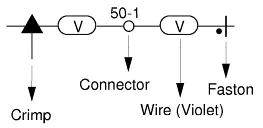
FS-106 CONNECTOR LAYOUT DIAGRAM


128(W:3PIN)
105(W:6PIN)
29(W:3PIN)
39(BK:10PIN)
109(W:13PIN)
141(W:3PIN)
11(W:6PIN)
38(BK:10PIN)
110(W:13PIN)
142(W:3PIN)
131(W:3PIN)
112(W:2PIN)
101(W:14PIN)
108(BK:2PIN)
103(W:7PIN)
156(W:6PIN)
151(W:2PIN)
152(W:2PIN)
5(W:2PIN)
11(W:6PIN)
155(W:2PIN)
122(W:3PIN)
1(W:24PIN)
12(W:6PIN)
10(W:6PIN)
9(W:6PIN)
7(W:6PIN)
6(W:24PIN)
8(W:2PIN)
3(W:8PIN)
2(W:18PIN)
4(W:9PIN)
29(W:2PIN)
103(BK:2PIN)
123(W:3PIN)
126(W:3PIN)
161(W:3PIN)
132(W:3PIN)
153(W:2PIN)
154(W:2PIN)
121(W:3PIN)
124(W:3PIN)
138(W:3PIN)
102(BK:2PIN)
125(W:3PIN)

FS-106 OVERALL WIRING DIAGRAM

[How to see the diagram]

1. The signals shown reflect levels present under normal idleing conditions with the main switch turned ON.
2. Wiring symbols in the figure are as follows.
   (1) [Symbol]


50-1
V
V
Connector
Faston
Crimp
Wire (Violet)

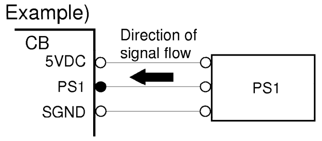
   (2) [Color code]

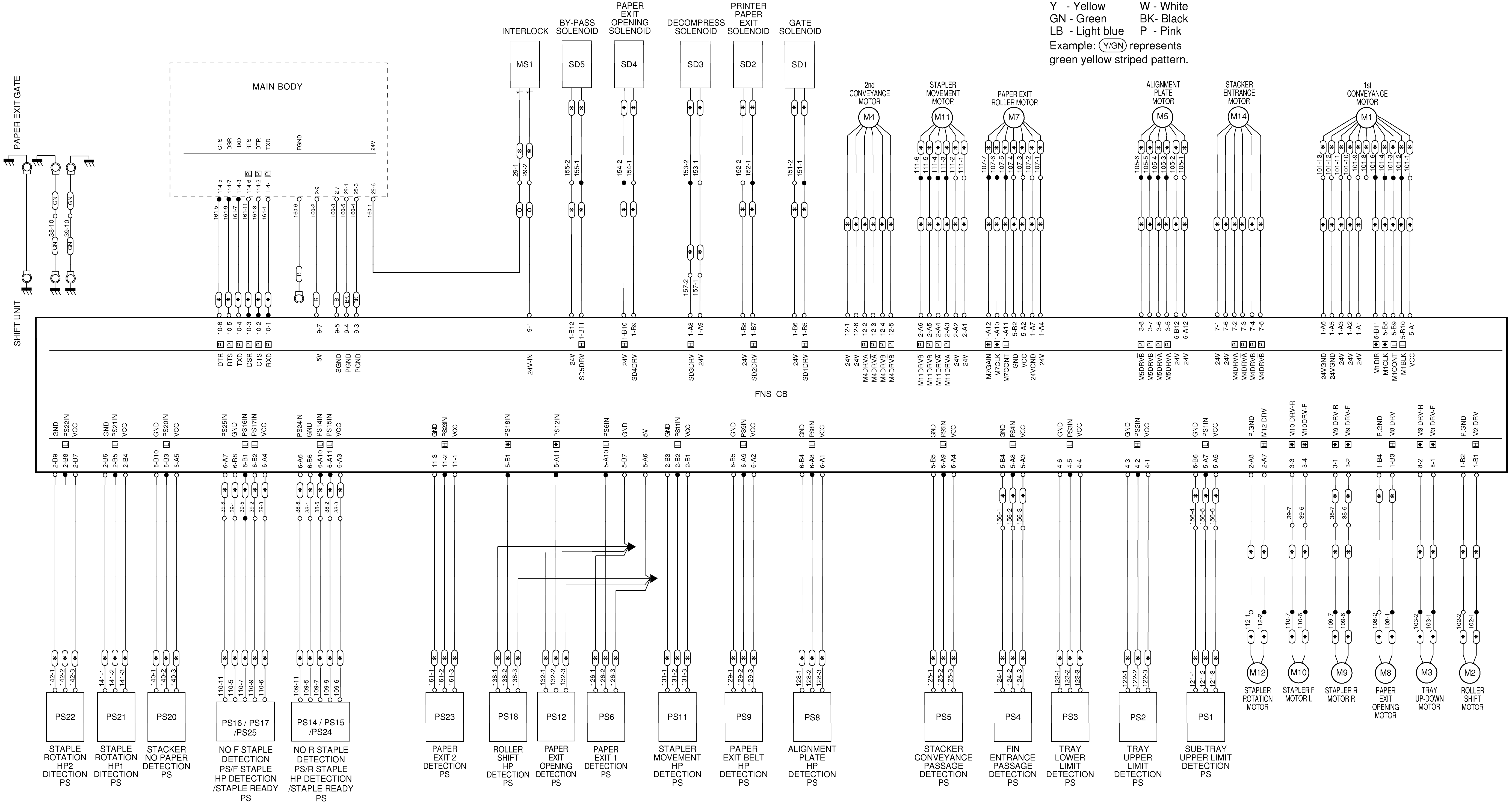
BN - Brown	B - Blue
R - Red	V - Violet
O - Orange	GY- Gray
Y - Yellow	W - White
GN - Green	BK- Black
LB - Light blue	P - Pink

Example: (Y/GN) represents green yellow striped pattern.

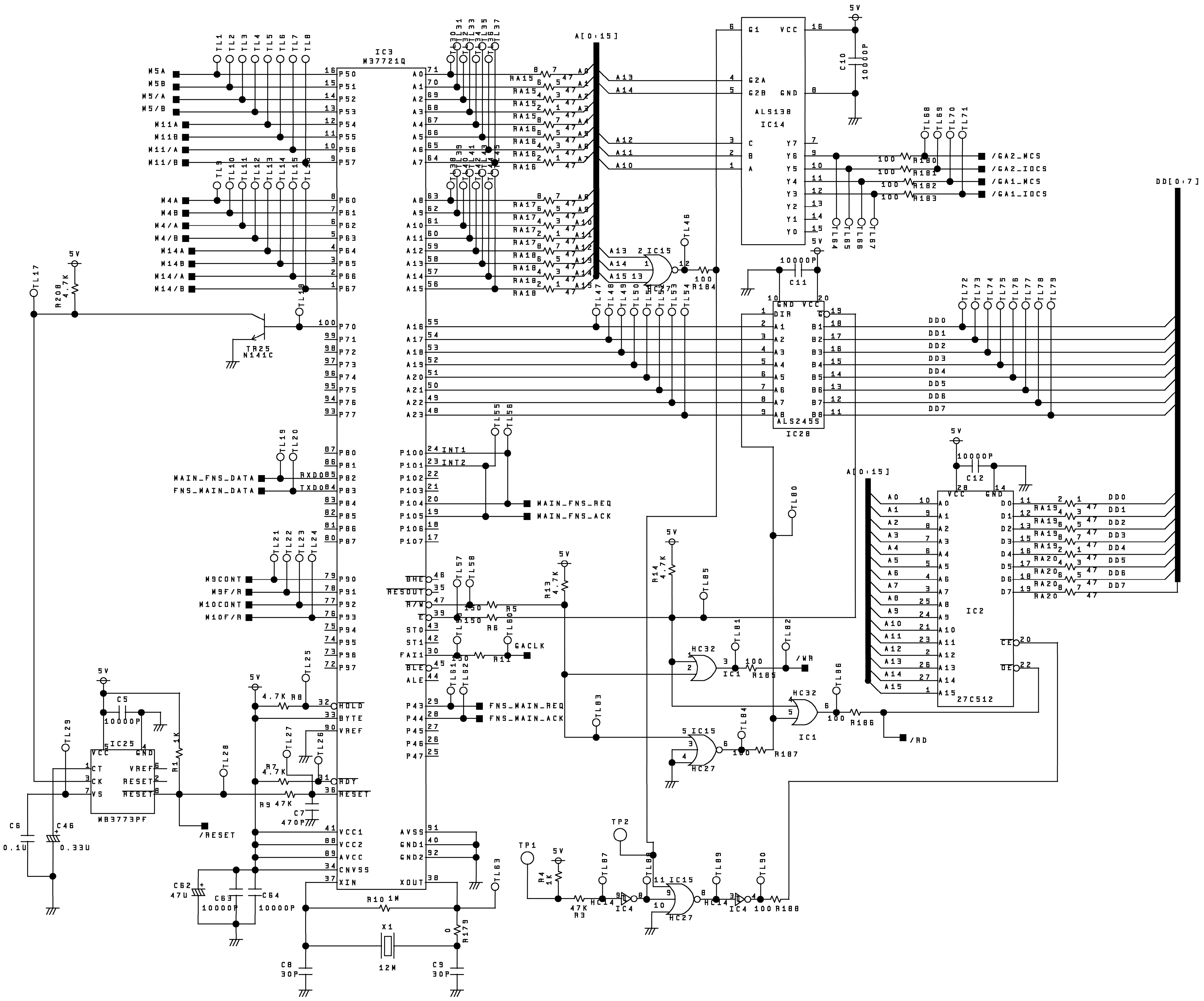
(3) (RC) is ribbon cable.

(4) Signal flow
The solid black circle (●) among the connector symbols (○) indicates the direction of signal flow.
Example)

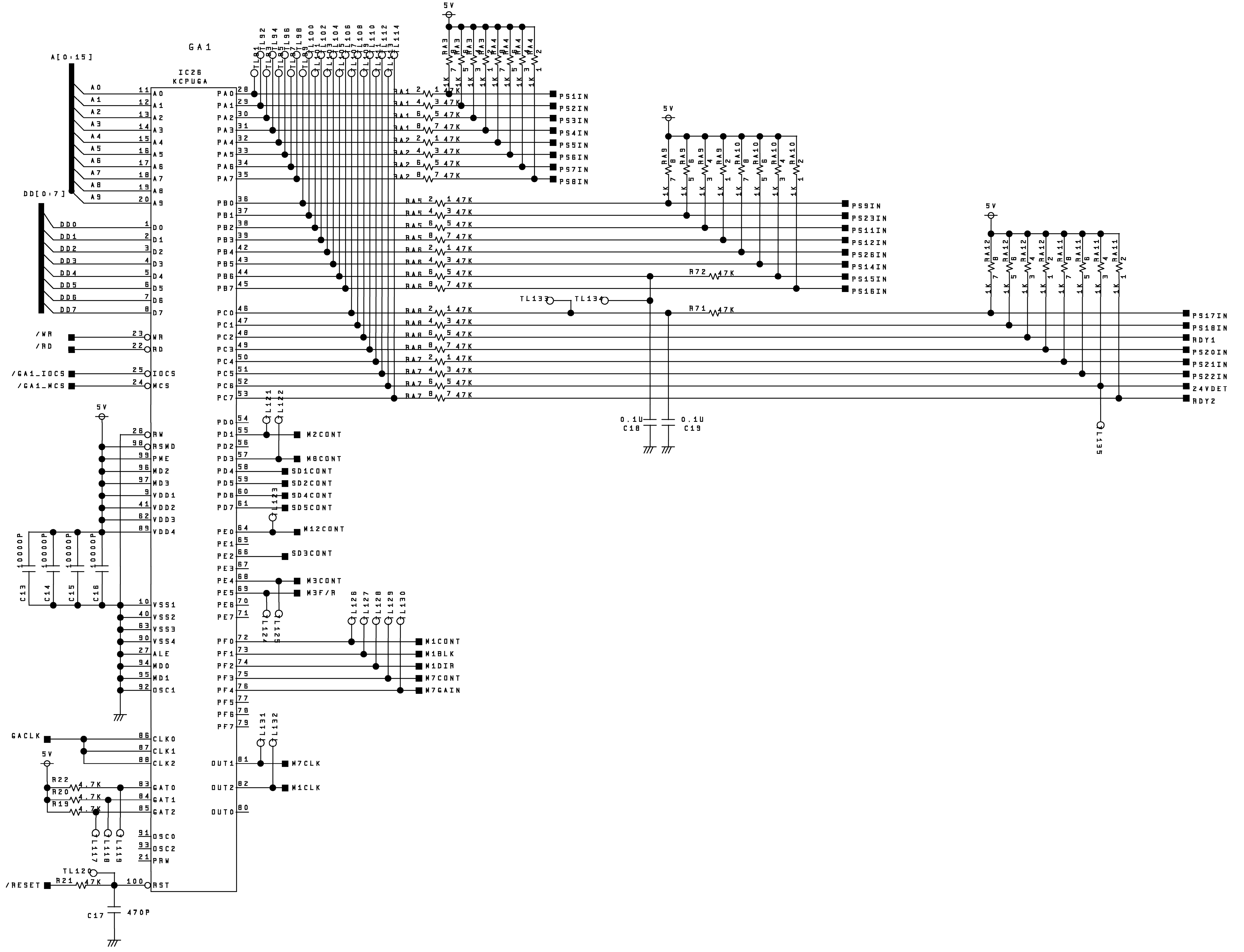

CB
5VDC
PS1
SGND
Direction of signal flow
PS1


MAIN BODY
CTS
DSR
RXD
RTS
DTR
TXD
FGND
24V
PAPER EXIT GATE
SHIFT UNIT
INTERLOCK
MS1
BY-PASS SOLENOID
SD5
PAPER EXIT OPENING SOLENOID
SD4
DECOMPRESS SOLENOID
SD3
PRINTER PAPER EXIT SOLENOID
SD2
GATE SOLENOID
SD1
2nd CONVEYANCE MOTOR
M4
STAPLER MOVEMENT MOTOR
M11
PAPER EXIT ROLLER MOTOR
M7
ALIGNMENT PLATE MOTOR
M5
STACKER ENTRANCE MOTOR
M14
1st CONVEYANCE MOTOR
M1
FNS CB
DTR
RTS
TXD
DSR
CTS
RXD
5V
SGND
PGND
PGND
24V-IN
24V
SD5DRV
24V
SD4DRV
SD3DRV
24V
24V
SD2DRV
24V
SD1DRV
M4DRVA
M4DRVA
M4DRVB
M4DRVB
M11DRVB
M11DRVB
M11DRVA
M11DRVA
M7GAIN
M7CLK
M7CONT
GND
VCC
24VGND
M5DRVB
M5DRVB
M5DRVA
M5DRVA
M4DRVA
M4DRVA
M4DRVB
M4DRVB
24VGND
24VGND
M1DIR
M1CLK
M1CONT
M1BLK
VCC
GND
PS22IN
VCC
PS21IN
PS20IN
PS25IN
PS16IN
PS17IN
PS24IN
PS14IN
PS15IN
PS23IN
PS18IN
PS12IN
PS6IN
PS11IN
PS9IN
PS8IN
PS5IN
PS4IN
PS3IN
PS2IN
PS1IN
P.GND
M12 DRV
M10 DRV-R
M10DRV-F
M9 DRV-R
M9 DRV-F
M8 DRV
M3 DRV-R
M3 DRV-F
M2 DRV
PS22
STAPLE ROTATION HP2 DITECTION PS
PS21
STAPLE ROTATION HP1 DETECTION PS
PS20
STACKER NO PAPER DETECTION PS
PS16 / PS17 /PS25
NO F STAPLE DETECTION PS/F STAPLE HP DETECTION /STAPLE READY PS
PS14 / PS15 /PS24
NO R STAPLE DETECTION PS/R STAPLE HP DETECTION /STAPLE READY PS
PS23
PAPER EXIT 2 DETECTION PS
PS18
ROLLER SHIFT HP DETECTION PS
PS12
PAPER EXIT OPENING DETECTION PS
PS6
PAPER EXIT 1 DETECTION PS
PS11
STAPLER MOVEMENT HP DETECTION PS
PS9
PAPER EXIT BELT HP DETECTION PS
PS8
ALIGNMENT PLATE HP DETECTION PS
PS5
STACKER CONVEYANCE PASSAGE DETECTION PS
PS4
FIN ENTRANCE PASSAGE DETECTION PS
PS3
TRAY LOWER LIMIT DETECTION PS
PS2
TRAY UPPER LIMIT DETECTION PS
PS1
SUB-TRAY UPPER LIMIT DETECTION PS
M12
STAPLER ROTATION MOTOR
M10
STAPLER F MOTOR L
M9
STAPLER R MOTOR R
M8
PAPER EXIT OPENING MOTOR
M3
TRAY UP-DOWN MOTOR
M2
ROLLER SHIFT MOTOR

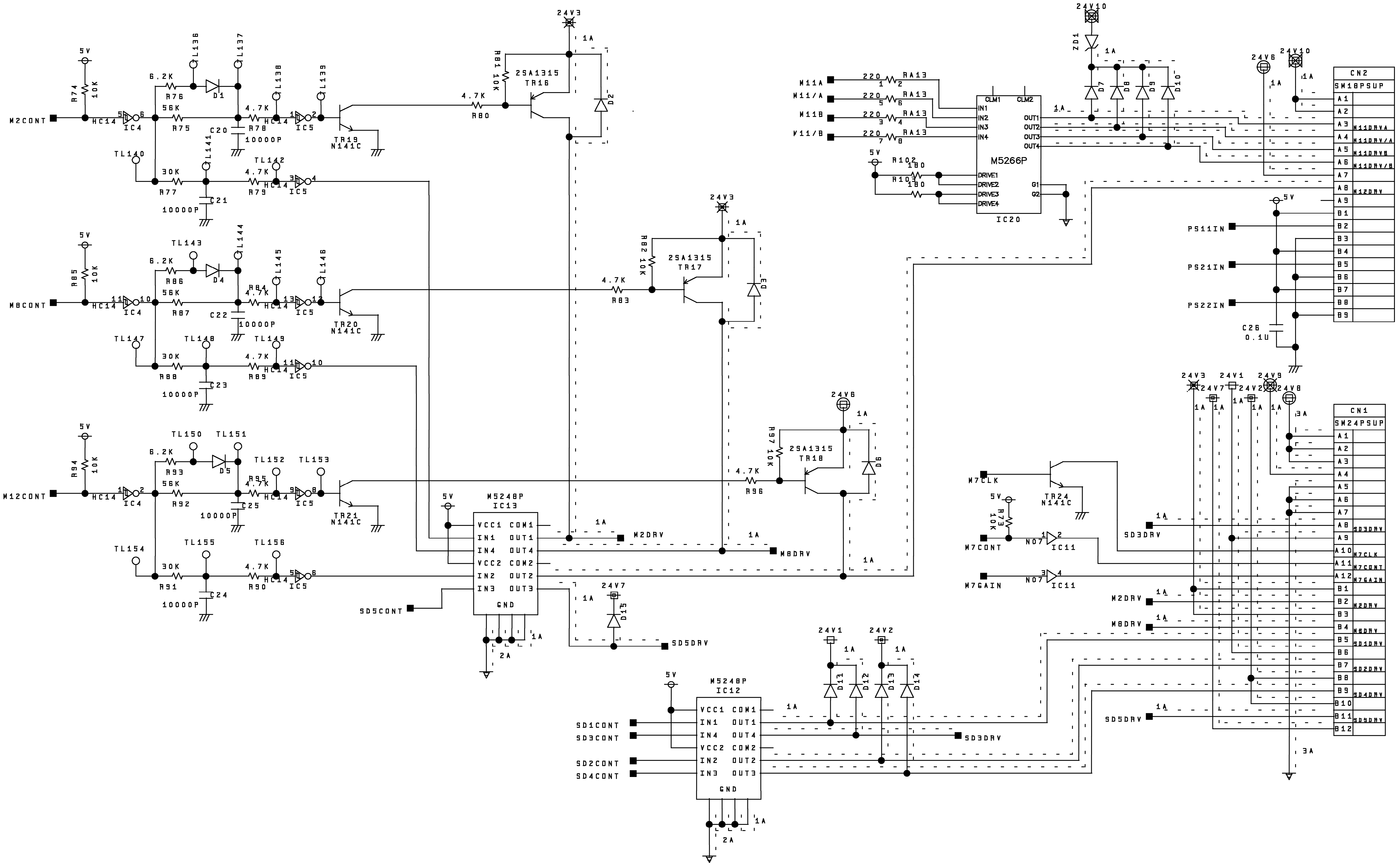
FS-106 CONTROL BOARD CIRCUIT DIAGRAM (1/7)


IC3
M37721Q
M5A
M5B
M5/A
M5/B
M11A
M11B
M11/A
M11/B
M4A
M4B
M4/A
M4/B
M14A
M14B
M14/A
M14/B
TR25
N141C
R208
4.7K
5V
MAIN_FNS_DATA
FNS_MAIN_DATA
RXD0
TXD0
M9CONT
M9F/R
M10CONT
M10F/R
A[0:15]
ALS138
IC14
/GA2_MCS
/GA2_IOCS
/GA1_MCS
/GA1_IOCS
R180
R181
R182
R183
C10
10000P
DD[0:7]
IC15
HC27
R184
C11
ALS245S
IC28
DD0
DD1
DD2
DD3
DD4
DD5
DD6
DD7
INT1
INT2
MAIN_FNS_REQ
MAIN_FNS_ACK
FNS_MAIN_REQ
FNS_MAIN_ACK
GACLK
C12
IC2
27C512
HC32
IC1
R185
/WR
R186
/RD
R187
R13
R14
4.7K
IC25
MB3773PF
/RESET
C5
C6
0.1U
C46
0.33U
R1
1K
R7
R8
R9
47K
C7
470P
C62
47U
C63
C64
10000P
R10
1M
X1
12M
R179
C8
30P
C9
30P
TP1
TP2
R4
R3
HC14
IC4
R188
R5
R6
R11
150

FS-106 CONTROL BOARD CIRCUIT DIAGRAM (2/7)

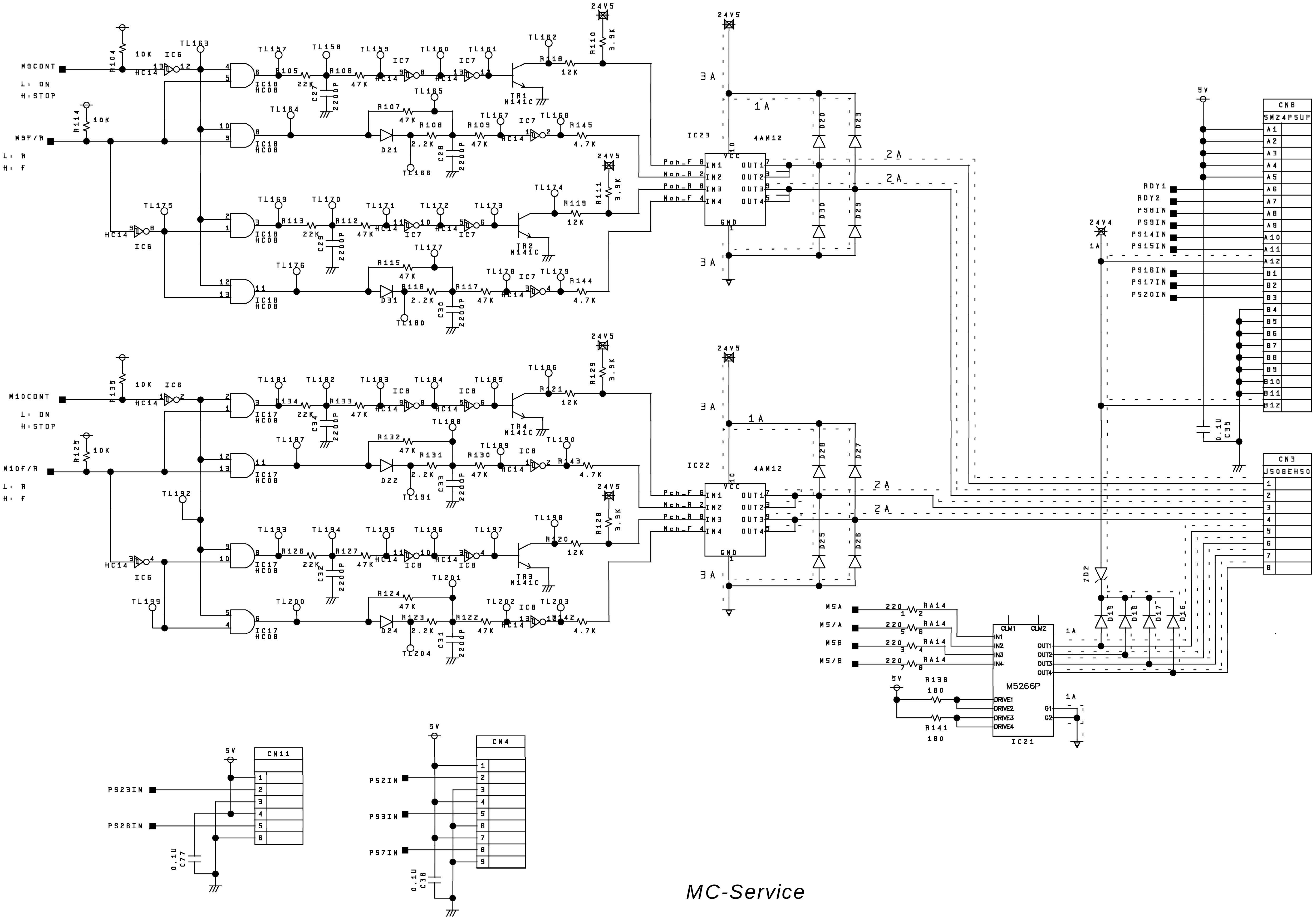

GA1
IC26
KCPUGA
A[0:15]
DD[0:7]
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9
DD0 DD1 DD2 DD3 DD4 DD5 DD6 DD7
/WR
/RD
/GA1_IOCS
/GA1_MCS
WR
RD
IOCS
MCS
5V
RW
RSMD
PWE
MD2
MD3
VDD1
VDD2
VDD3
VDD4
VSS1
VSS2
VSS3
VSS4
ALE
MD0
MD1
OSC1
C13 C14 C15 C16
10000P
GACLK
CLK0
CLK1
CLK2
R22 4.7K
R20 4.7K
R19 4.7K
GAT0
GAT1
GAT2
TL117 TL118 TL119
OSC0
OSC2
PRW
TL120
/RESET
R21 47K
RST
C17 470P
PA0 PA1 PA2 PA3 PA4 PA5 PA6 PA7
PB0 PB1 PB2 PB3 PB4 PB5 PB6 PB7
PC0 PC1 PC2 PC3 PC4 PC5 PC6 PC7
PD0 PD1 PD2 PD3 PD4 PD5 PD6 PD7
PE0 PE1 PE2 PE3 PE4 PE5 PE6 PE7
PF0 PF1 PF2 PF3 PF4 PF5 PF6 PF7
OUT1 OUT2 OUT0
TL91 TL92 TL93 TL94 TL95 TL96 TL97 TL98 TL99 TL100 TL101 TL102 TL103 TL104 TL105 TL106 TL107 TL108 TL109 TL110 TL111 TL112 TL113 TL114
RA1 47K
RA2 47K
RA3 1K
RA4 1K
PS1IN PS2IN PS3IN PS4IN PS5IN PS6IN PS7IN PS8IN
RA5 47K
RA6 47K
RA9 1K
RA10 1K
PS9IN PS23IN PS11IN PS12IN PS26IN PS14IN PS15IN PS16IN
R72 47K
R71 47K
TL133 TL134
RA8 47K
RA7 47K
RA11 1K
RA12 1K
PS17IN PS18IN RDY1 PS20IN PS21IN PS22IN 24VDET RDY2
C18 0.1U
C19 0.1U
TL135
TL121 TL122
M2CONT
M8CONT
SD1CONT
SD2CONT
SD4CONT
SD5CONT
TL123
M12CONT
SD3CONT
M3CONT
M3F/R
TL124 TL125
TL126 TL127 TL128 TL129 TL130
M1CONT
M1BLK
M1DIR
M7CONT
M7GAIN
TL131 TL132
M7CLK
M1CLK

FS-106 CONTROL BOARD CIRCUIT DIAGRAM (3/7)



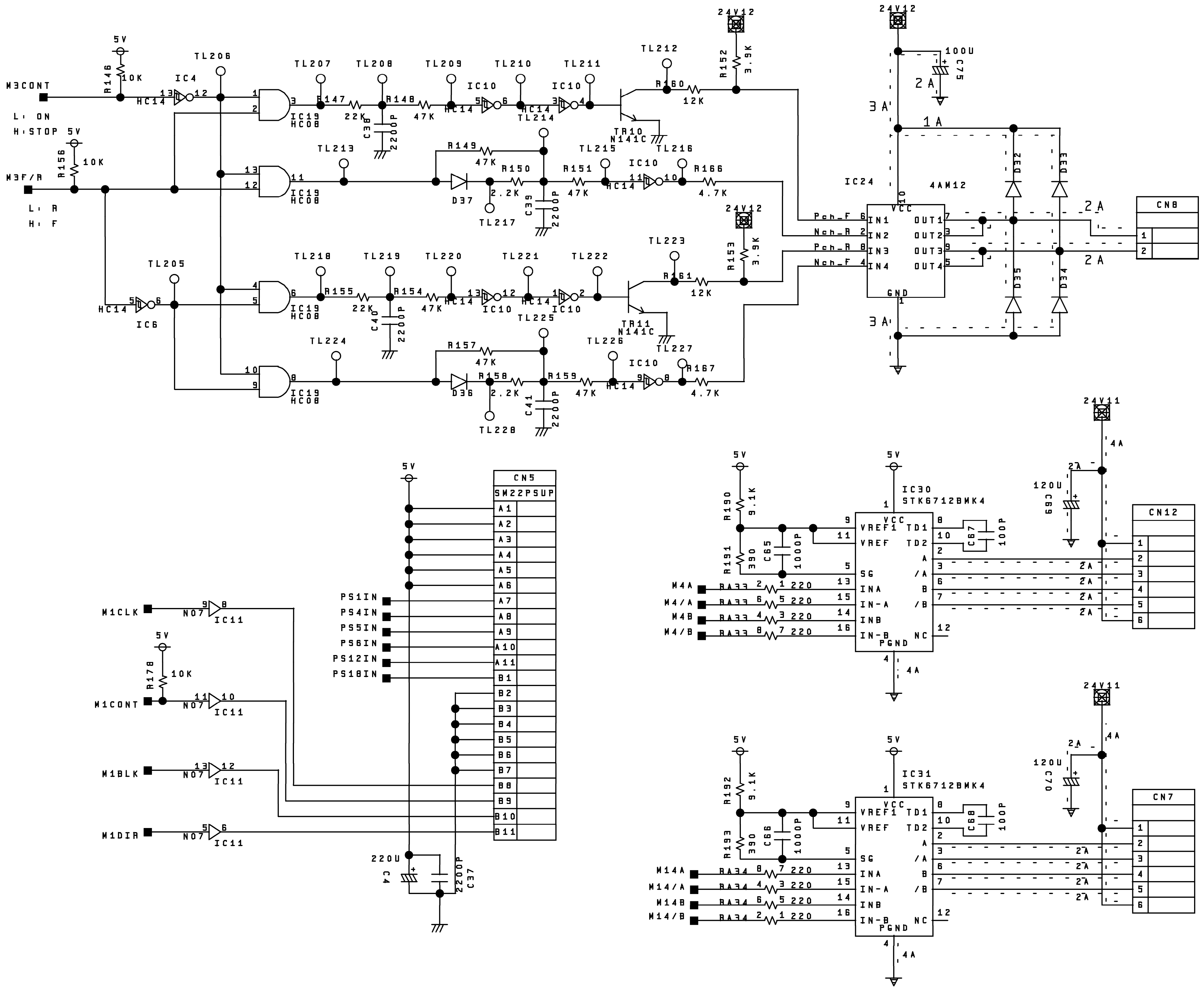
M2CONT
M8CONT
M12CONT
5V
R74
10K
R85
R94
6.2K
R76
R86
R93
56K
R75
R87
R92
30K
R77
R88
R91
4.7K
R78
R79
R84
R89
R95
R90
HC14
IC4
IC5
C20
C21
C22
C23
C24
C25
10000P
D1
D4
D5
TL136
TL137
TL138
TL139
TL140
TL141
TL142
TL143
TL144
TL145
TL146
TL147
TL148
TL149
TL150
TL151
TL152
TL153
TL154
TL155
TL156
TR19
TR20
TR21
N141C
R80
R81 10K
R82 10K
R83
R96
R97 10K
2SA1315
TR16
TR17
TR18
24V3
24V6
24V7
1A
2A
D2
D3
D6
D15
M5248P
IC13
VCC1
IN1
IN4
VCC2
IN2
IN3
COM1
OUT1
OUT4
COM2
OUT2
OUT3
GND
SD5CONT
M2DRV
M8DRV
SD5DRV
M11A
M11/A
M11B
M11/B
220
RA13
M5266P
IC20
CLM1
CLM2
DRIVE1
DRIVE2
DRIVE3
DRIVE4
G1
G2
R102
R103
180
24V10
ZD1
D7
D8
D9
D10
24V8
CN2
SM18PSUP
A1
A2
A3
A4
A5
A6
A7
A8
A9
B1
B2
B3
B4
B5
B6
B7
B8
B9
M11DRVA
M11DRV/A
M11DRVB
M11DRV/B
M12DRV
PS11IN
PS21IN
PS22IN
C26
0.1U
24V1
24V2
24V9
CN1
SM24PSUP
A10
A11
A12
B10
B11
B12
SD3DRV
M7CLK
M7CONT
M7GAIN
SD1DRV
SD2DRV
SD4DRV
TR24
R73
10K
NO7
IC11
3A
SD1CONT
SD3CONT
SD2CONT
SD4CONT
IC12
D11
D12
D13
D14

FS-106 CONTROL BOARD CIRCUIT DIAGRAM (4/7)

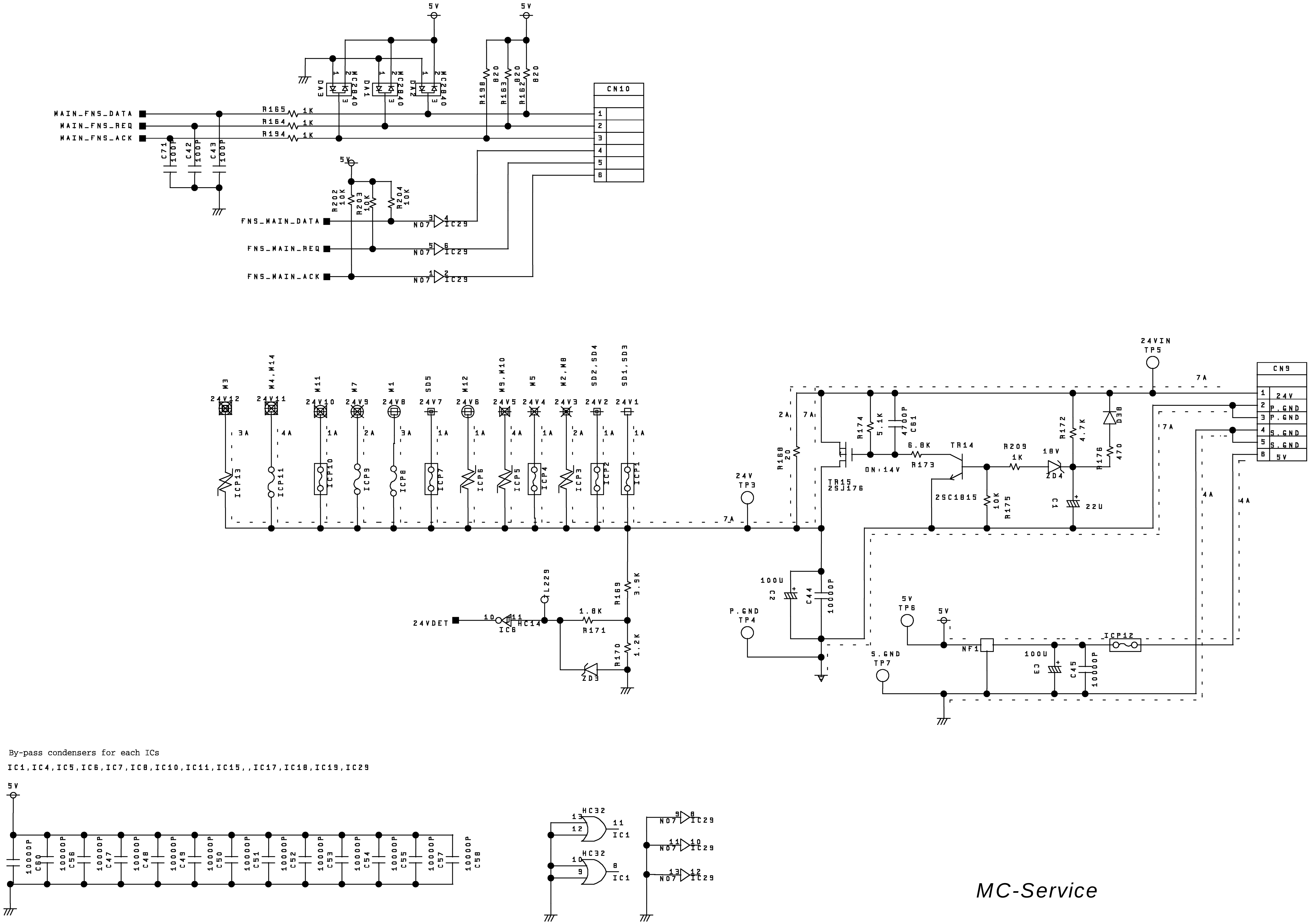

M9CONT
L: ON
H: STOP
M9F/R
L: R
H: F
M10CONT
L: ON
H: STOP
M10F/R
L: R
H: F
R104 10K
R114 10K
R135 10K
R125 10K
IC6 HC14
IC7 HC14
IC8 HC14
IC18 HC08
IC17 HC08
TL157 TL158 TL159 TL160 TL161 TL162 TL163 TL164 TL165 TL166 TL167 TL168 TL169 TL170 TL171 TL172 TL173 TL174 TL175 TL176 TL177 TL178 TL179 TL180
TL181 TL182 TL183 TL184 TL185 TL186 TL187 TL188 TL189 TL190 TL191 TL192 TL193 TL194 TL195 TL196 TL197 TL198 TL199 TL200 TL201 TL202 TL203 TL204
R105 22K
R106 47K
R107 47K
R108 2.2K
R109 47K
R110 3.9K
R111 3.9K
R112 47K
R113 22K
R115 47K
R116 2.2K
R117 47K
R118 12K
R119 12K
R120 12K
R121 12K
R122 47K
R123 2.2K
R124 47K
R126 22K
R127 47K
R128 3.9K
R129 3.9K
R130 47K
R131 2.2K
R132 47K
R133 47K
R134 22K
R142 4.7K
R143 4.7K
R144 4.7K
R145 4.7K
C27 C28 C29 C30 C31 C32 C33 C34 2200P
D21 D22 D24 D31
TR1 TR2 TR3 TR4 N141C
24V5
3A
1A
2A
IC23 4AM12
IC22 4AM12
Pch_F IN1
Nch_R IN2
Pch_R IN3
Nch_F IN4
VCC GND
OUT1 OUT2 OUT3 OUT4
D20 D23 D30 D29 D28 D27 D25 D26
5V
CN6 SM24PSUP
A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12
B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B11 B12
RDY1 RDY2 PS8IN PS9IN PS14IN PS15IN PS16IN PS17IN PS20IN
24V4
0.1U C35
CN3 JS08EHS0
1 2 3 4 5 6 7 8
ZD2
D19 D18 D17 D16
M5A M5/A M5B M5/B
220 RA14
R136 180
R141 180
IC21 M5266P
CLM1 CLM2
IN1 IN2 IN3 IN4
OUT1 OUT2 OUT3 OUT4
DRIVE1 DRIVE2 DRIVE3 DRIVE4
G1 G2
CN11
PS23IN
PS26IN
0.1U C77
CN4
PS2IN
PS3IN
PS7IN
0.1U C36

MC-Service

FS-106 CONTROL BOARD CIRCUIT DIAGRAM (5/7)

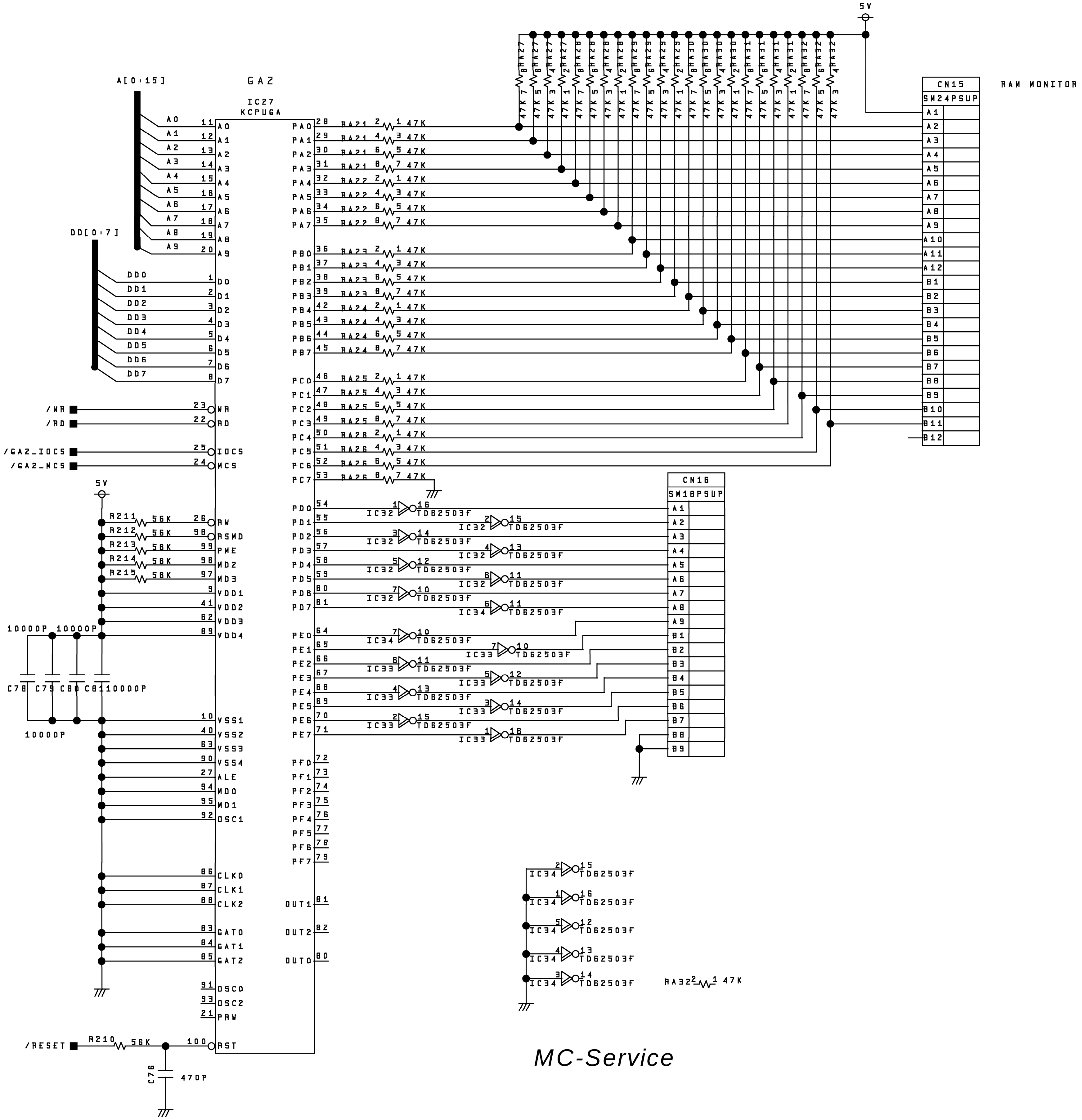

M3CONT
L: ON
H:STOP
M3F/R
L: R
H: F
5V
R146
10K
R156
IC4
HC14
IC6
TL205
TL206
TL207
TL208
TL209
TL210
TL211
TL212
TL213
TL214
TL215
TL216
TL217
TL218
TL219
TL220
TL221
TL222
TL223
TL224
TL225
TL226
TL227
TL228
IC19
HC08
IC10
R147
22K
R148
47K
C38
2200P
R149
R150
2.2K
R151
R166
4.7K
C39
D37
TR10
N141C
R160
12K
R152
3.9K
24V12
R155
R154
C40
R157
R158
R159
R167
C41
D36
TR11
R161
R153
IC24
4AM12
VCC
IN1
IN2
IN3
IN4
OUT1
OUT2
OUT3
OUT4
GND
Pch_F
Nch_R
Pch_R
Nch_F
100U
C75
3A
2A
1A
D32
D33
D34
D35
CN8
CN5
SM22PSUP
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
B11
PS1IN
PS4IN
PS5IN
PS6IN
PS12IN
PS18IN
M1CLK
M1CONT
M1BLK
M1DIR
N07
IC11
R178
220U
C4
C37
24V11
4A
IC30
STK6712BMK4
R190
9.1K
R191
390
C65
1000P
C67
100P
120U
C69
VREF1
VREF
SG
INA
IN-A
INB
IN-B
PGND
TD1
TD2
A
/A
B
/B
NC
M4A
M4/A
M4B
M4/B
RA33
220
CN12
IC31
R192
R193
C66
C68
C70
M14A
M14/A
M14B
M14/B
RA34
CN7

FS-106 CONTROL BOARD CIRCUIT DIAGRAM (6/7)


5V
MAIN_FNS_DATA
MAIN_FNS_REQ
MAIN_FNS_ACK
R165 1K
R164 1K
R194 1K
C71 100P
C42 100P
C43 100P
DA3
DA1
DA2
MC2840
R198 820
R163 820
R162 820
CN10
1
2
3
4
5
6
R202 10K
R203 10K
R204 10K
FNS_MAIN_DATA
FNS_MAIN_REQ
FNS_MAIN_ACK
N07 IC29
M3
M4,M14
M11
M7
M1
SD5
M12
M9,M10
M5
M2,M8
SD2,SD4
SD1,SD3
24V12
24V11
24V10
24V9
24V8
24V7
24V6
24V5
24V4
24V3
24V2
24V1
3A
4A
1A
2A
ICP13
ICP11
ICP10
ICP9
ICP8
ICP7
ICP6
ICP5
ICP4
ICP3
ICP2
ICP1
7A
24V
TP3
24VIN
TP5
CN9
24V
P.GND
P.GND
S.GND
S.GND
5V
R168 20
R174 5.1K
4700P C61
6.8K
R173
TR14
R209 1K
18V
ZD4
R172 4.7K
D38
R176 470
TR15 2SJ176
ON:14V
2SC1815
10K R175
C1 22U
IL229
24VDET
IC6
HC14
1.8K
R171
R169 3.9K
R170 1.2K
ZD3
100U
C2
C44 10000P
P.GND
TP4
5V
TP6
5V
S.GND
TP7
NF1
100U
C3
C45 10000P
ICP12
By-pass condensers for each ICs
IC1,IC4,IC5,IC6,IC7,IC8,IC10,IC11,IC15,,IC17,IC18,IC19,IC29
10000P
C60
C56
C47
C48
C49
C50
C51
C52
C53
C54
C55
C57
C58
HC32
IC1
13
12
11
10
9
8
N07 IC29

MC-Service

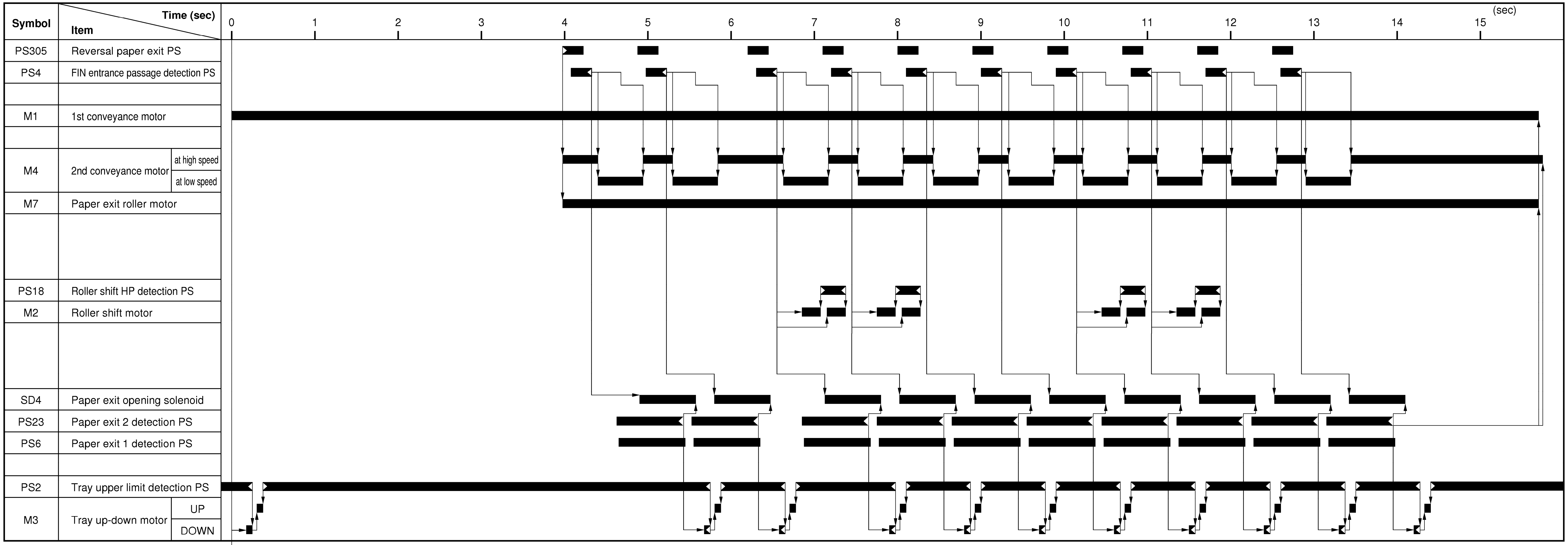
FS-106 CONTROL BOARD CIRCUIT DIAGRAM (7/7)



GA2
IC27
KCPUGA
A[0:15]
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9
DD[0:7]
DD0 DD1 DD2 DD3 DD4 DD5 DD6 DD7
D0 D1 D2 D3 D4 D5 D6 D7
/WR
/RD
/GA2_IOCS
/GA2_MCS
WR
RD
IOCS
MCS
5V
R211 56K
R212 56K
R213 56K
R214 56K
R215 56K
RW
RSMD
PWE
MD2
MD3
VDD1
VDD2
VDD3
VDD4
10000P 10000P
C78 C79 C80 C81 10000P
10000P
VSS1 VSS2 VSS3 VSS4
ALE
MD0
MD1
OSC1
CLK0 CLK1 CLK2
GAT0 GAT1 GAT2
OSC0
OSC2
PRW
/RESET
R210 56K
RST
C76 470P
PA0 PA1 PA2 PA3 PA4 PA5 PA6 PA7
PB0 PB1 PB2 PB3 PB4 PB5 PB6 PB7
PC0 PC1 PC2 PC3 PC4 PC5 PC6 PC7
PD0 PD1 PD2 PD3 PD4 PD5 PD6 PD7
PE0 PE1 PE2 PE3 PE4 PE5 PE6 PE7
PF0 PF1 PF2 PF3 PF4 PF5 PF6 PF7
OUT1
OUT2
OUT0
RA21 47K
RA22 47K
RA23 47K
RA24 47K
RA25 47K
RA26 47K
RA27 47K
RA28 47K
RA29 47K
RA30 47K
RA31 47K
RA32 47K
5V
CN15
SM24PSUP
RAM MONITOR
A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12
B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B11 B12
CN16
SM18PSUP
A1 A2 A3 A4 A5 A6 A7 A8 A9
B1 B2 B3 B4 B5 B6 B7 B8 B9
IC32 TD62503F
IC33 TD62503F
IC34 TD62503F
RA32 47K

MC-Service

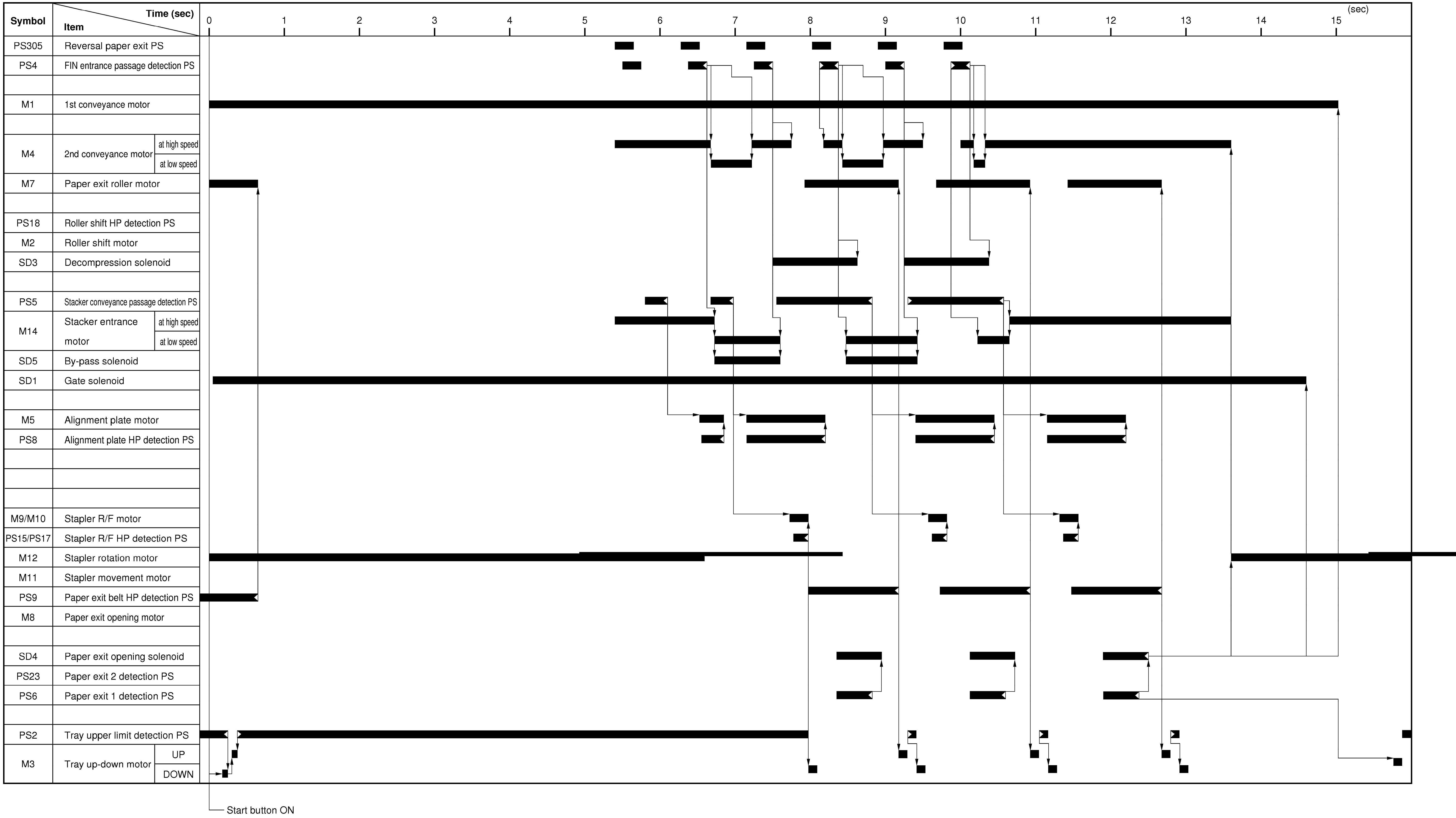
FS-106 TIMING CHART (SORT MODE, A4, 2 PAGE ORIGINALS, 5 COPIES, 1:1 RATIO)


Symbol
Item
Time (sec)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
(sec)
PS305
Reversal paper exit PS
PS4
FIN entrance passage detection PS
M1
1st conveyance motor
M4
2nd conveyance motor
at high speed
at low speed
M7
Paper exit roller motor
PS18
Roller shift HP detection PS
M2
Roller shift motor
SD4
Paper exit opening solenoid
PS23
Paper exit 2 detection PS
PS6
Paper exit 1 detection PS
PS2
Tray upper limit detection PS
M3
Tray up-down motor
UP
DOWN

Start button ON

MC-Service

FS-106 TIMING CHART (2 POSITION STAPLE MODE, A4, 2 PAGE ORIGINALS, 3 COPIES)


Symbol
Item
Time (sec)
(sec)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
PS305
Reversal paper exit PS
PS4
FIN entrance passage detection PS
M1
1st conveyance motor
M4
2nd conveyance motor
at high speed
at low speed
M7
Paper exit roller motor
PS18
Roller shift HP detection PS
M2
Roller shift motor
SD3
Decompression solenoid
PS5
Stacker conveyance passage detection PS
M14
Stacker entrance motor
at high speed
at low speed
SD5
By-pass solenoid
SD1
Gate solenoid
M5
Alignment plate motor
PS8
Alignment plate HP detection PS
M9/M10
Stapler R/F motor
PS15/PS17
Stapler R/F HP detection PS
M12
Stapler rotation motor
M11
Stapler movement motor
PS9
Paper exit belt HP detection PS
M8
Paper exit opening motor
SD4
Paper exit opening solenoid
PS23
Paper exit 2 detection PS
PS6
Paper exit 1 detection PS
PS2
Tray upper limit detection PS
M3
Tray up-down motor
UP
DOWN
Start button ON

Konica

FS-108
FS-108BM

SERVICE HANDBOOK

Sep.1999
Ver.1.0

KONICA CORPORATION
TECHNOLOGY SUPPORT CENTER
TOKYO JAPAN

CONTENTS

SAFETY AND IMPORTANT WARNING ITEMS ....
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This section covers the structure,functions,operation and method of disassembling and assembling the machine.
Observe the following precautions when performing disassembly and assembly work.

1. Be sure to unplug the power cord before working on the machine.
2. Perform all reassembly work by reversing the order in which the component was disassembled,unless otherwise specified.
3. Do not lose small parts (screws,etc.) or insert them in the wrong place.
4. Install all parts completely before operating the machine.
5. Do not loosen the screws indicated as disallowed for removal.

2. DIAGRAM

FS-108/FS-108BM ELECTRICAL PARTS LAYOUT DRAWING 2-1
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1

FS-108
FS-108BM

FS-108/FS-108BM PRODUCT SPECIFICATIONS

1. Type

FS-108: Finishing device implementing offset collation, stapling, and sub-tray eject

FS-108BM: Finishing device implementing offset collation, stapling, sub-tray eject, stapling-and-folding, and folding

2. Functions

Type of Paper: Same as for the main body.

Paper Size: A3R, B4R, F4R, A4R, A4, B5R, B5, A5R, B6R.
B6R is not possible in off-set mode; B5R, A5R, B6R are not possible in staple mode. F4R, A4, B5R, B5, A5R, A5, B6R are not available in booklet mode.

Paper Stacking Capacity:

Sub-tray exit mode:
Maximum 200 sheets (same-size sheets only)
Non-Staple, Group, and Offset modes:
Maximum 1500 sheets (A3R, B4R, F4R)
Maximum 3000 sheets (B5R, B5, A4R, A4)
Maximum 500 sheets (B6R, A5R, A5)
Staple Mode: Maximum 1000 sheets

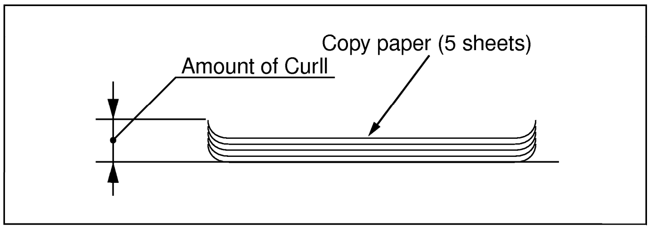
Main-Tray Capacity (same-size sheets only)

Original Pages	Other than A3R, 11x17R	A3R, 11x17R
2 to 9	100 stacks	50 stacks
10 to 20	50 stacks	50 stacks
21 to 30	30 stacks	30 stacks
31 to 40	25 stacks	25 stacks
41 to 50	20 stacks	20 stacks

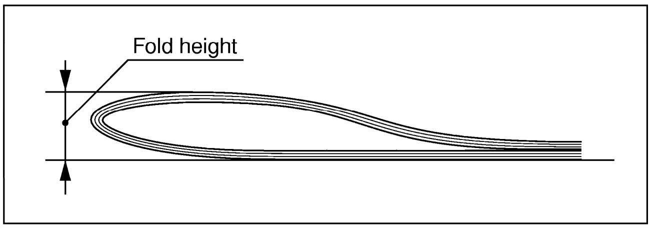
Booklet Mode (FS-108BM only):

- Stapling-and-folding + folding
  20 booklets of 5 folded sheets each (20 pages/booklet; eq. to 400 pages)
- Folding
  33 booklets of 3 folded sheets each (12 pages/booklet; eq. to 396 pages)

Paper curling: Maximum 10mm



Booklet-mode folding level (FS-108BM only)
(For $80g/m^2$ paper or equivalent, same-size sheets only)



Original Pages	A3R, 11x17R	B4, 8.5x14R	A4R, 8.5x11R
0 to 5	25mm or less	25mm or less	25mm or less
6 to 10	50mm or less	50mm or less	Not specified*
11 to 16	Not specified*	Not specified*	Not specified*

* May be unfolded after exit, provided that fold state can be easily restored.

Amount of sort off-setting: 30mm (when off-setting/grouping)

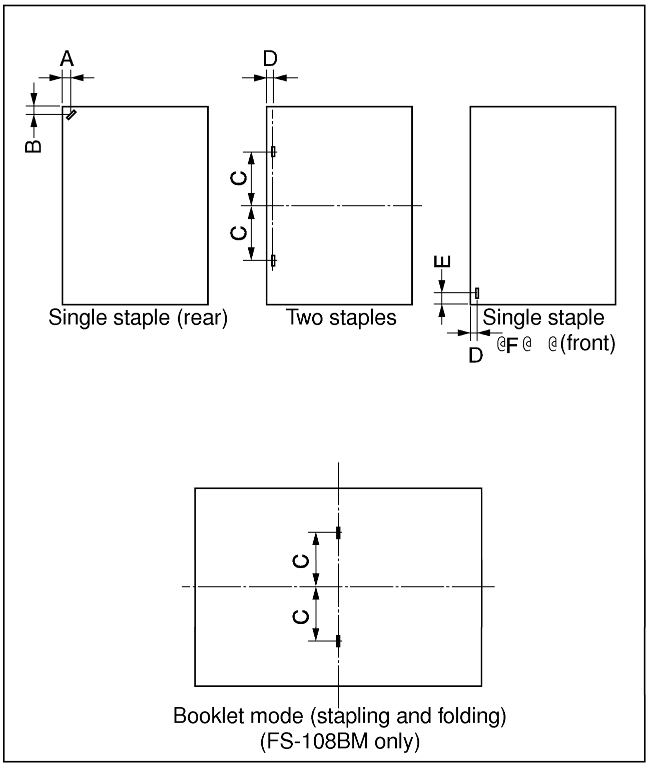
Tray: Main tray
Sub-tray
Booklet tray (FS-108BM only)

3. Staple Mode

Number of pages which may be stapled: 50 sheets maximum* (80g/m² high-quality paper, 5mm and below)

* Maximum sheets can be set to 45, 40, or 35 in accordance with paper quality and thickness.

Staple position: A = 8.5mm±3mm (adjustment possible)
B = 8.5mm±3mm
C = 82.5mm±3mm
D = 8.5mm±3mm (adjustment possible)
E = 14mm±3mm)


A
B
D
C
C
E
D
Single staple (rear)
Two staples
Single staple
@F@ @(front)
C
C
Booklet mode (stapling and folding)
(FS-108BM only)

Staple capacity: 5000 staples/cartridge

4. Booklet Mode (FS-108BM only)

Stapling-and-folding:
Maximum 16 sheets (80g/m² high-quality paper)
Maximum 15 sheets (80g/m² high-quality paper) + 1 sheet (200g/m² high-quality paper)

Folding: Maximum 3 sheets (80g/m² high-quality paper)

5. Option

PI-108 (Sheet feeder)

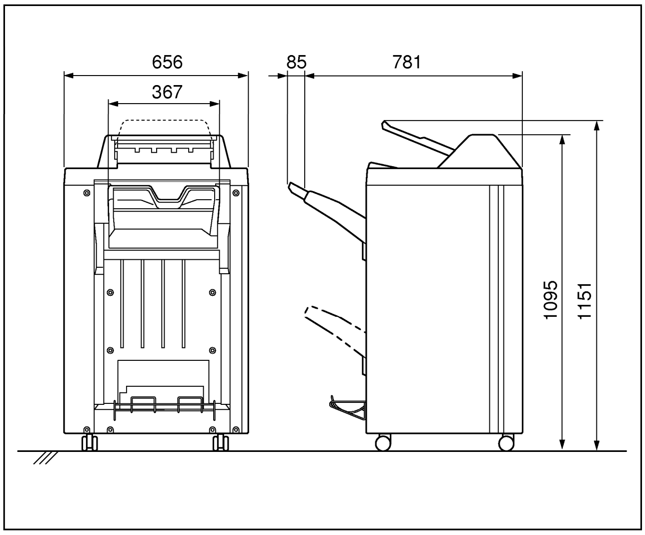
6. Machine Data

Power Source: 24 VDC, 5 VDC (supplied from the main body)

Maximum Power Consumption: 100VA

Weight:
FS-108: Approximately 55kg
FS-108BM: Approximately 80kg

External Dimensions:


656
367
85
781
1095
1151

7. Maintenance

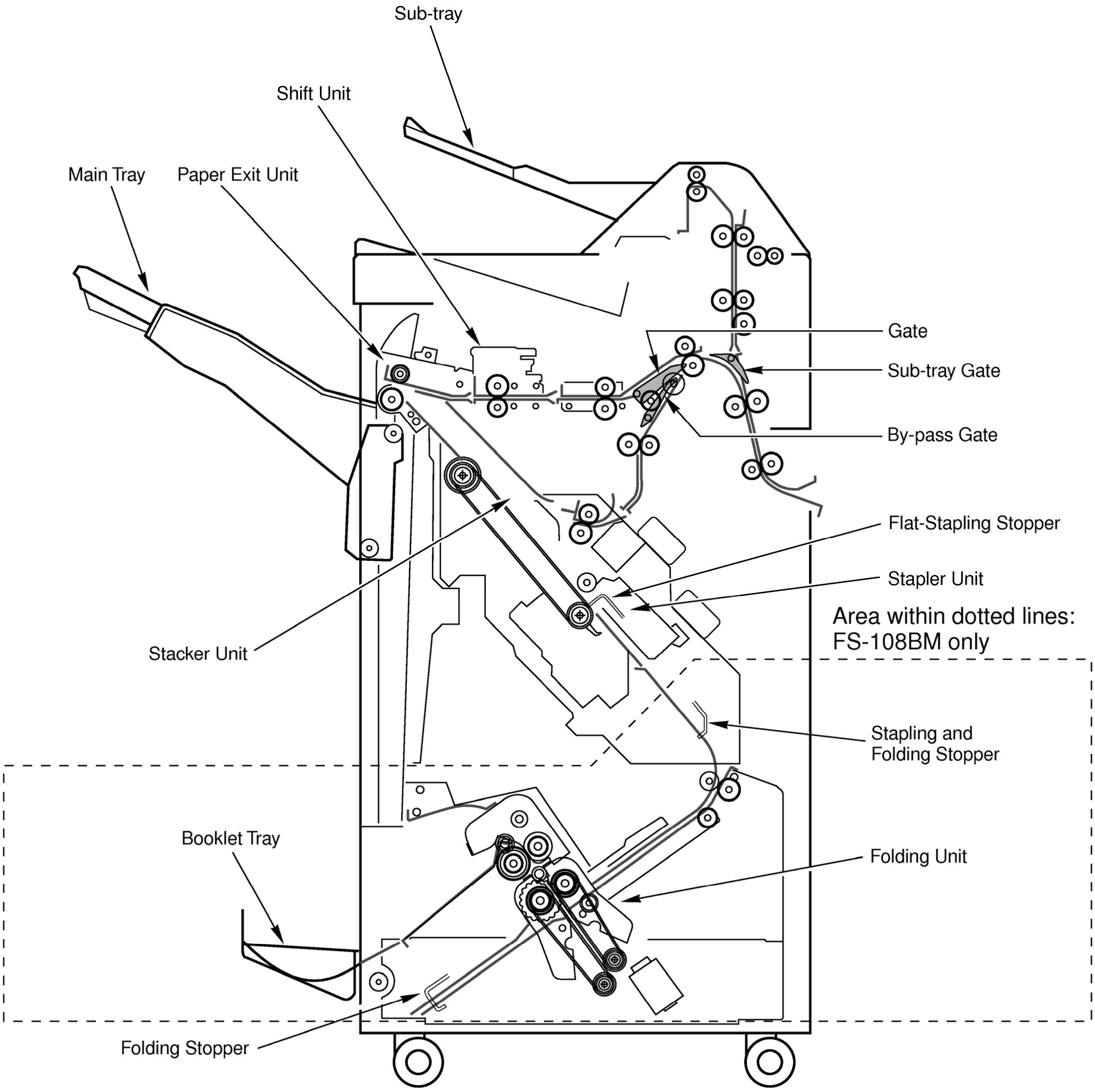
Maintenance: Same as the main body.
Service Life: Same as main body.

8. Machine Operating Environment

Temperature: 10 to 30˚C
Humidity: 10 to 80% RH

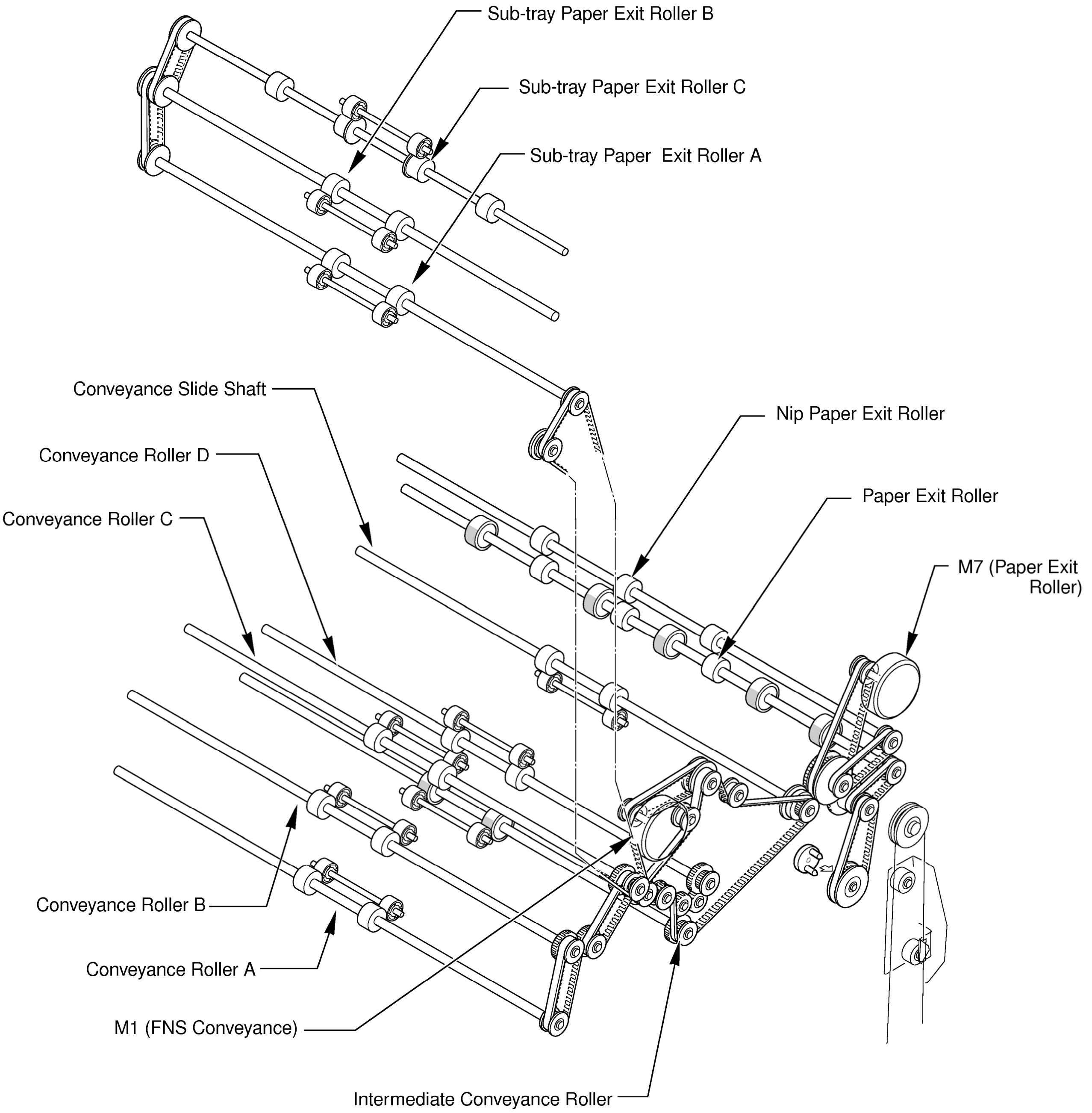
These specifications are subject to change without notice.

CENTER CROSS-SECTION

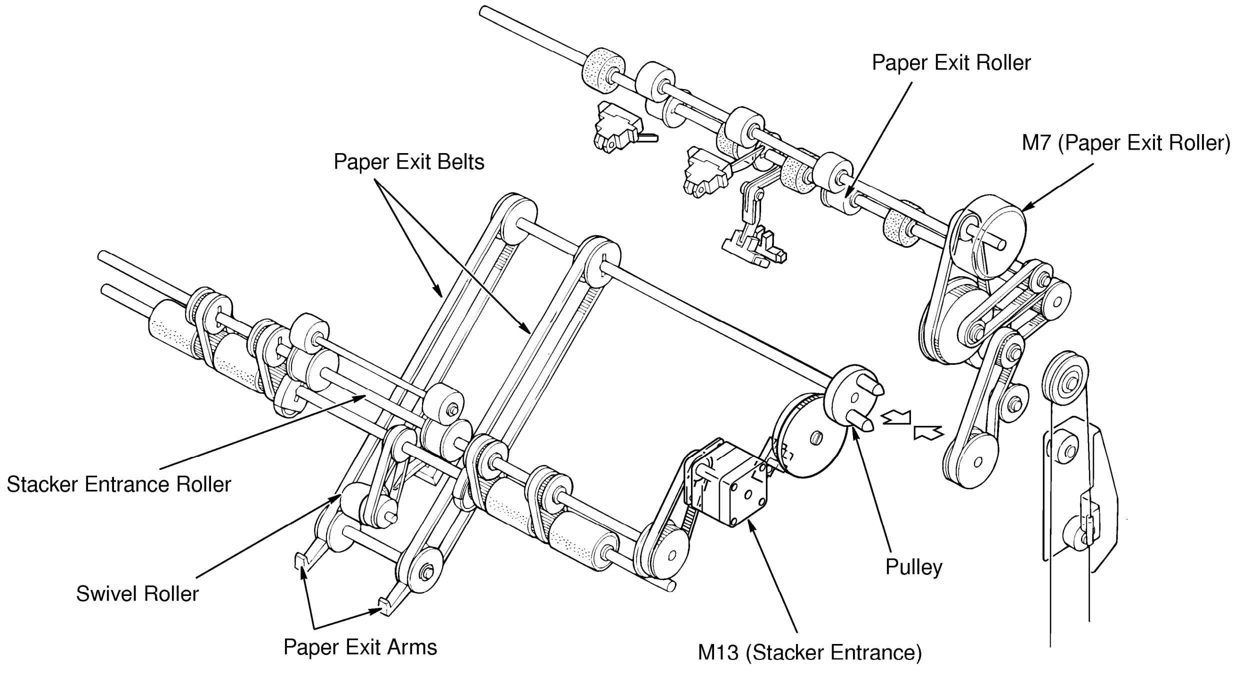

Sub-tray
Shift Unit
Main Tray
Paper Exit Unit
Gate
Sub-tray Gate
By-pass Gate
Flat-Stapling Stopper
Stapler Unit
Area within dotted lines:
FS-108BM only
Stacker Unit
Stapling and
Folding Stopper
Booklet Tray
Folding Unit
Folding Stopper

DRIVE SYSTEM DIAGRAM

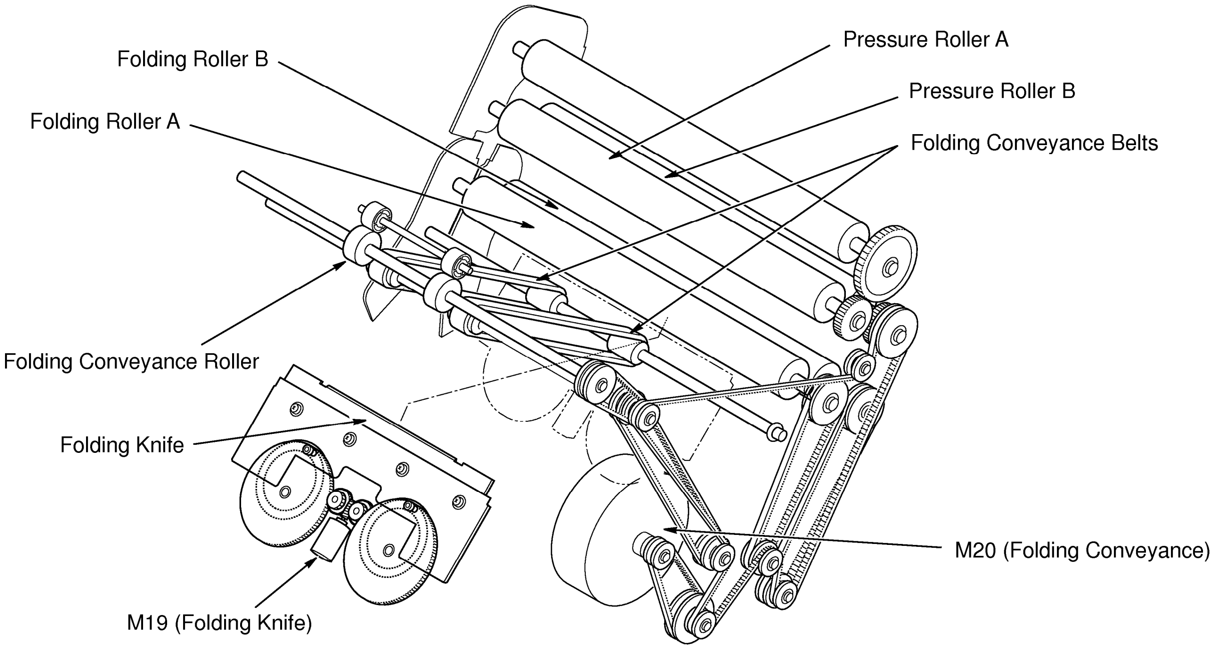
[1] Paper Conveyance Drive


Sub-tray Paper Exit Roller B
Sub-tray Paper Exit Roller C
Sub-tray Paper Exit Roller A
Conveyance Slide Shaft
Nip Paper Exit Roller
Conveyance Roller D
Paper Exit Roller
Conveyance Roller C
M7 (Paper Exit Roller)
Conveyance Roller B
Conveyance Roller A
M1 (FNS Conveyance)
Intermediate Conveyance Roller

[2] Stacker Drive


Paper Exit Roller
M7 (Paper Exit Roller)
Paper Exit Belts
Stacker Entrance Roller
Swivel Roller
Paper Exit Arms
Pulley
M13 (Stacker Entrance)

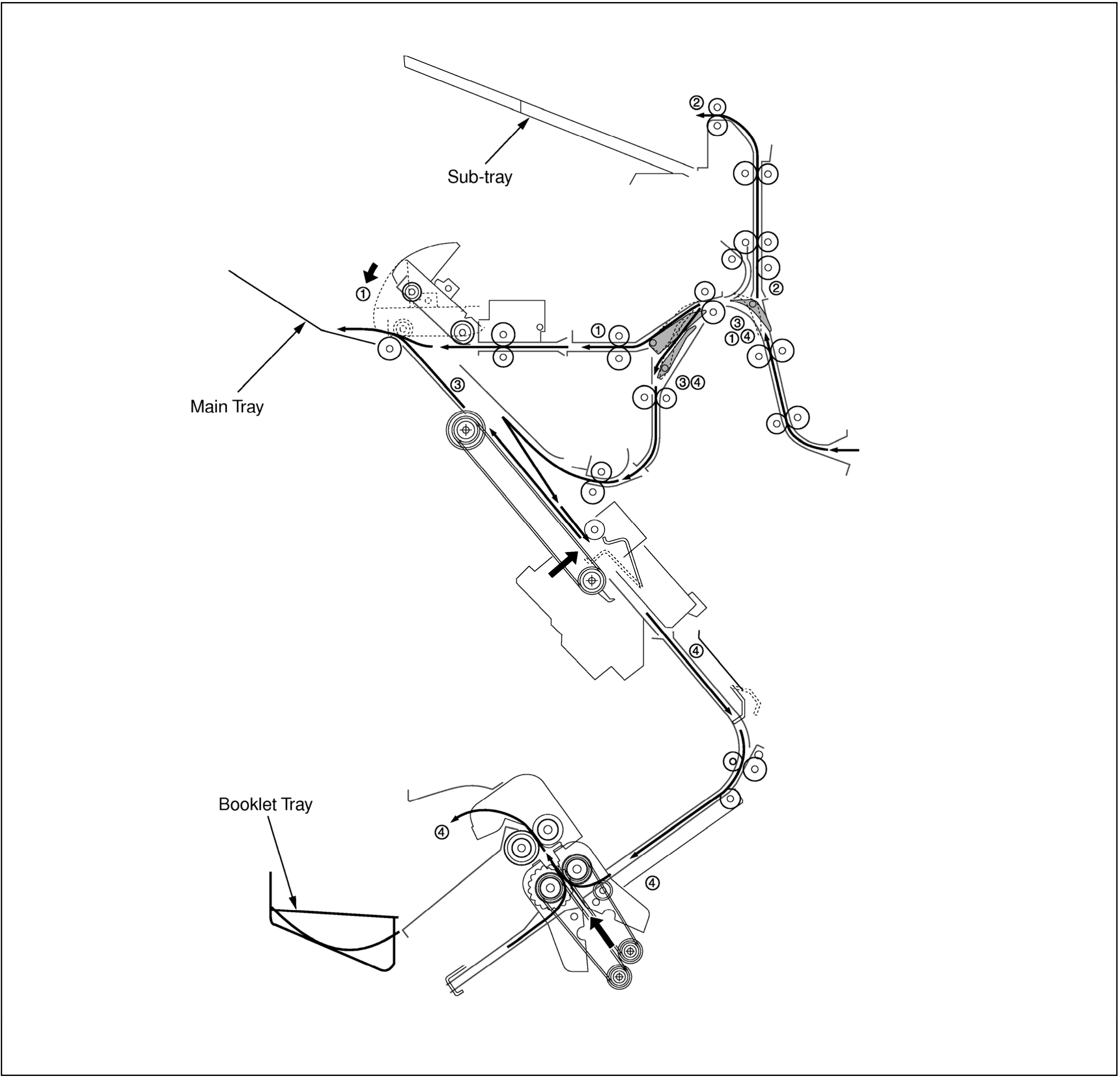
[3] Folding Drive (FS-108BM only)


Folding Roller B
Folding Roller A
Pressure Roller A
Pressure Roller B
Folding Conveyance Belts
Folding Conveyance Roller
Folding Knife
M19 (Folding Knife)
M20 (Folding Conveyance)

PAPER CONVEYANCE PATH

[1] Paper Conveyance Path

The FNS (finisher) provides four paper paths, as shown in the diagram below.
Face-up and face-down inversion is handled by at the main-body side by the main body's exit page inverter.

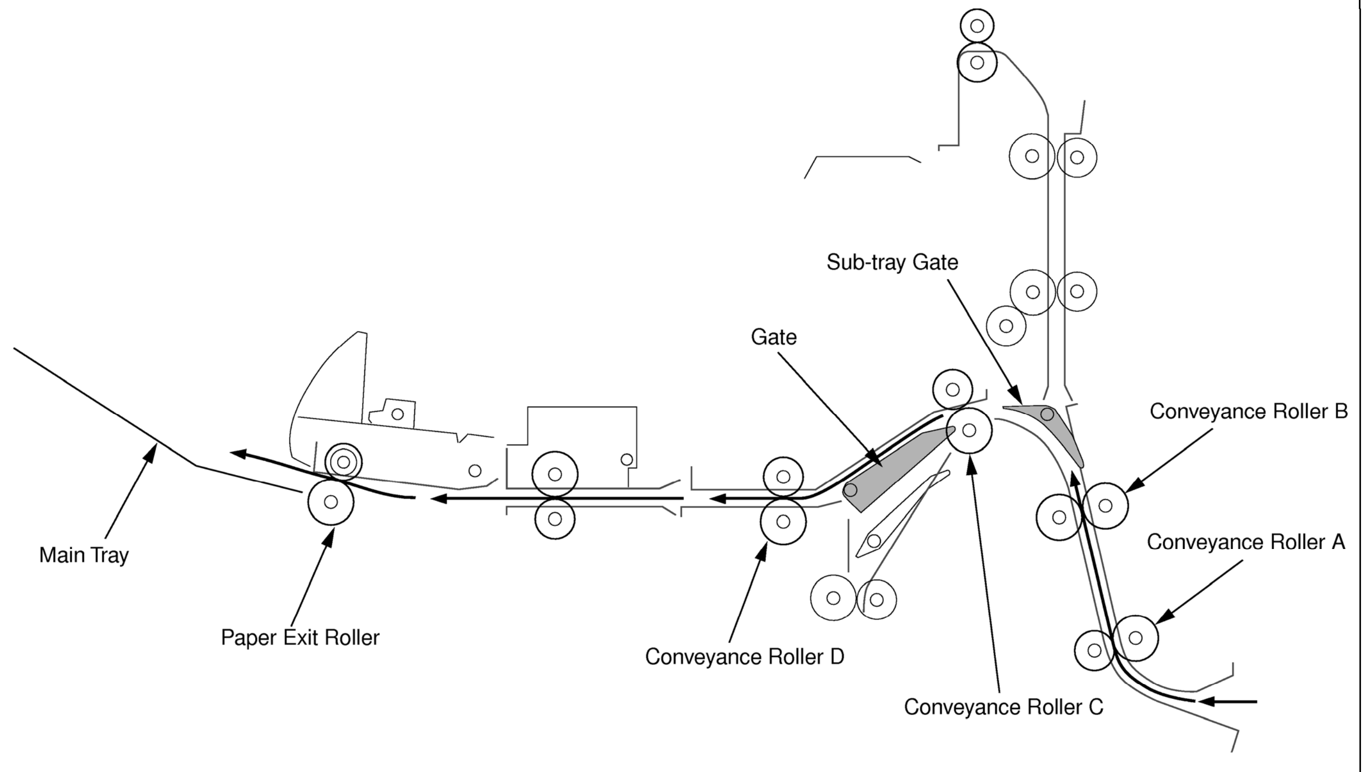

Sub-tray
Main Tray
Booklet Tray
①
②
③
④
③④
①④

Finishing	Paper Conveyance Paths
Sort, Group, Non-sort mode	①
Sub-tray mode	②
Staple mode	③
Booklet mode (FS-108BM only)	④

[2] Non-Sort Mode

Exit to main tray

A paper exited from the main body is conveyed and exited to the main tray.


Sub-tray Gate
Gate
Conveyance Roller B
Conveyance Roller A
Main Tray
Paper Exit Roller
Conveyance Roller D
Conveyance Roller C

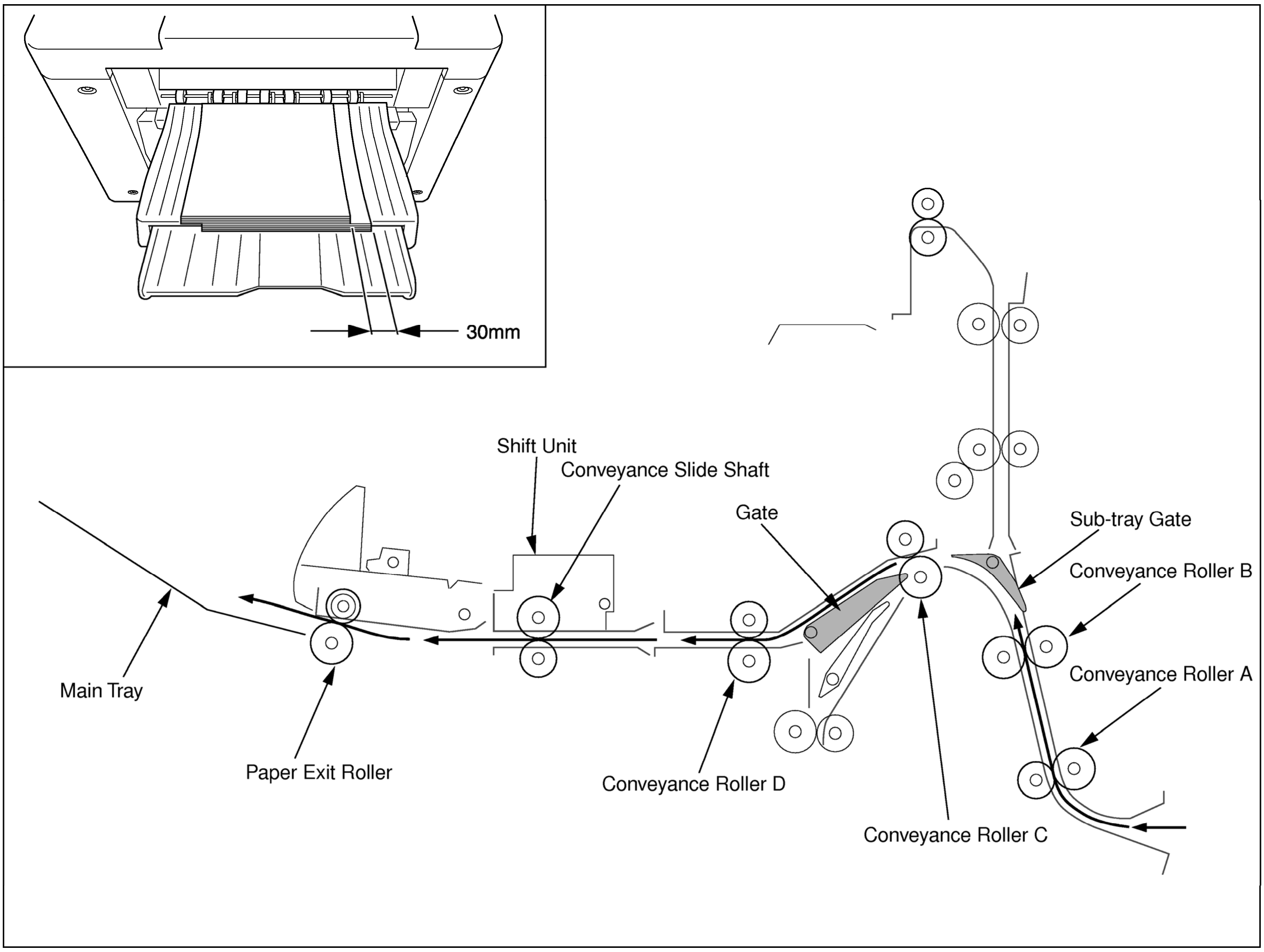
[3] Sort, Group Mode

Exit to the main tray

Paper exited from the main body is conveyed and exited to the main tray. This mode has an off-set function that allows each page of the even-numbered sets to be exited with the paper shifted 30mm to the rear.

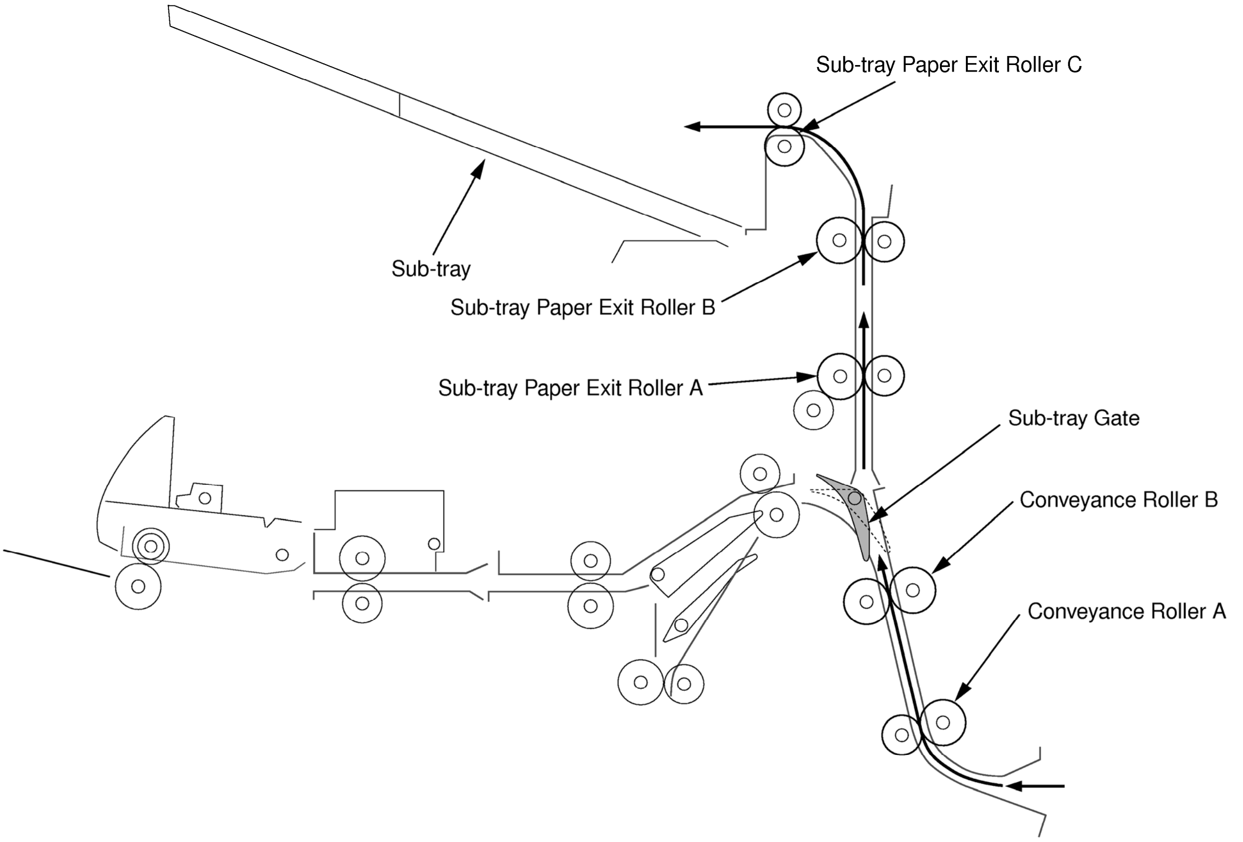
Off-set Function

(1) The odd-numbered pages are exited to the main tray with the image side face down.
(2) The even-numbered pages are shifted 30mm to the rear by the conveyance slide shaft of the shift unit and then exited to the main tray.


30mm
Shift Unit
Conveyance Slide Shaft
Gate
Sub-tray Gate
Conveyance Roller B
Conveyance Roller A
Main Tray
Paper Exit Roller
Conveyance Roller D
Conveyance Roller C

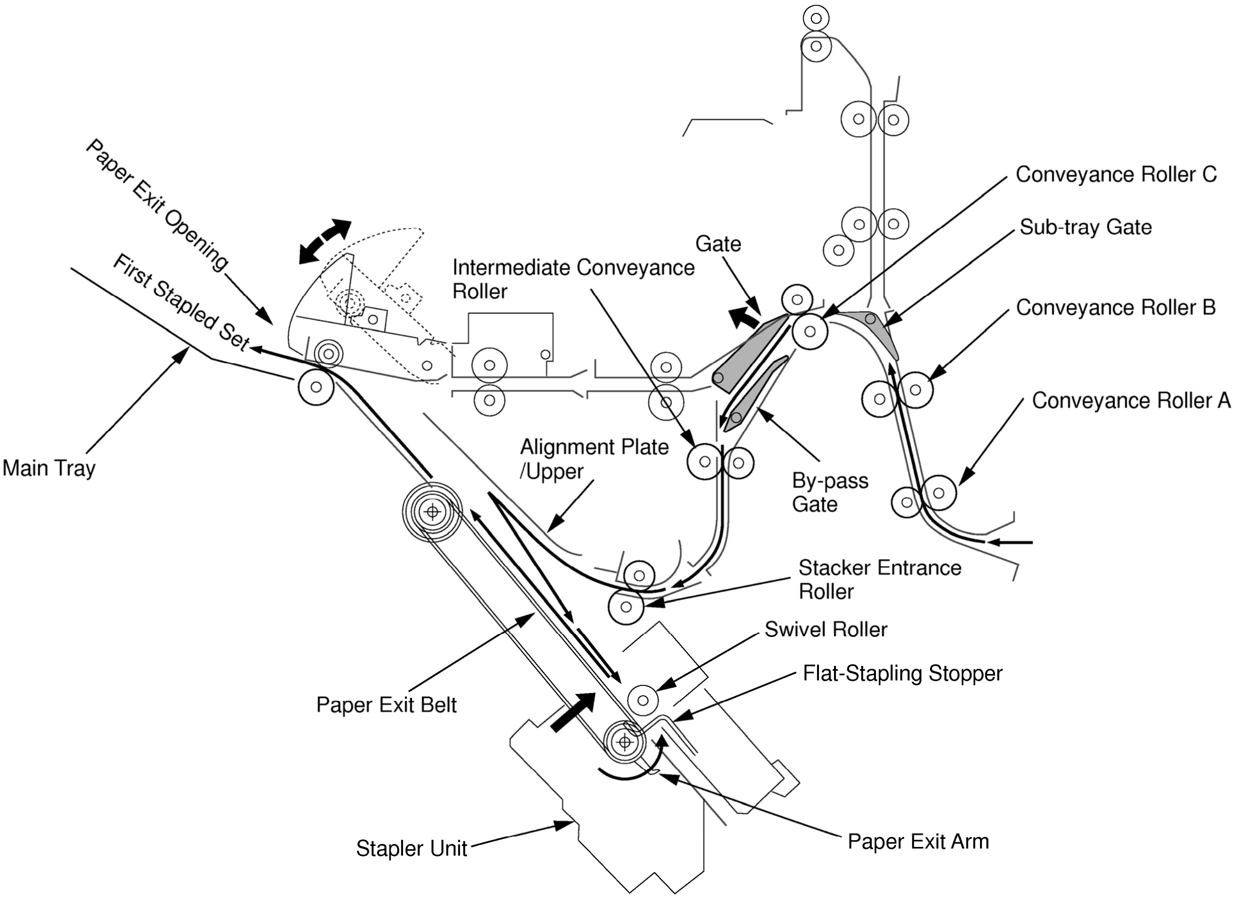
[4] Sub-tray Mode

The sub-tray gate opens. Paper exited from the main body is conveyed and exited to the sub-tray.


Sub-tray Paper Exit Roller C
Sub-tray
Sub-tray Paper Exit Roller B
Sub-tray Paper Exit Roller A
Sub-tray Gate
Conveyance Roller B
Conveyance Roller A

[5] Staple Mode

(1) The gate switches to the staple mode.
(2) For A4R paper and above, the paper exit opening opens.
(3) The first set of paper is conveyed and stacked.
  1) The stacker section roller sends the paper to the flat-stapling stopper and the paper is lined up in the lengthwise direction.
  2) The upper alignment plate lines up paper in the widthwise direction.
  3) Paper is stapled.
  4) The first set is conveyed by the paper exit arm and exited to the main tray.

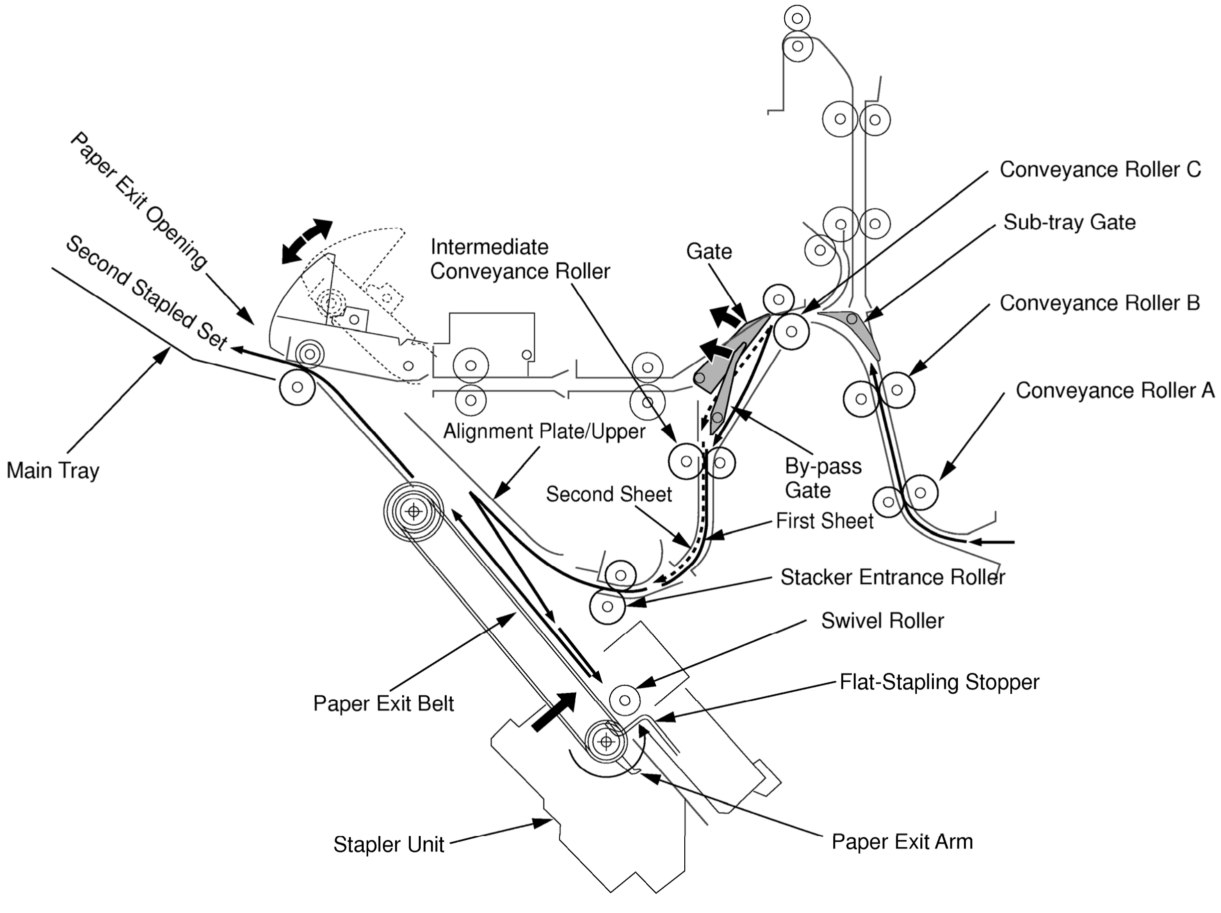

Paper Exit Opening
First Stapled Set
Main Tray
Intermediate Conveyance Roller
Gate
Conveyance Roller C
Sub-tray Gate
Conveyance Roller B
Conveyance Roller A
Alignment Plate /Upper
By-pass Gate
Stacker Entrance Roller
Swivel Roller
Flat-Stapling Stopper
Paper Exit Belt
Stapler Unit
Paper Exit Arm

(4) The second and subsequent sets of paper are conveyed and stacked.

1) The first page stops in the stacker entrance with the by-pass gate opened. The stacker entrance roller stops to wait for the previous stack to be exited.
2) The by-pass gate is closed and the second page is stacked on top of the first.
3) Once the previous stack has exited, the stack entrance roller rotates and the first and second pages are simultaneously sent to the stacker.

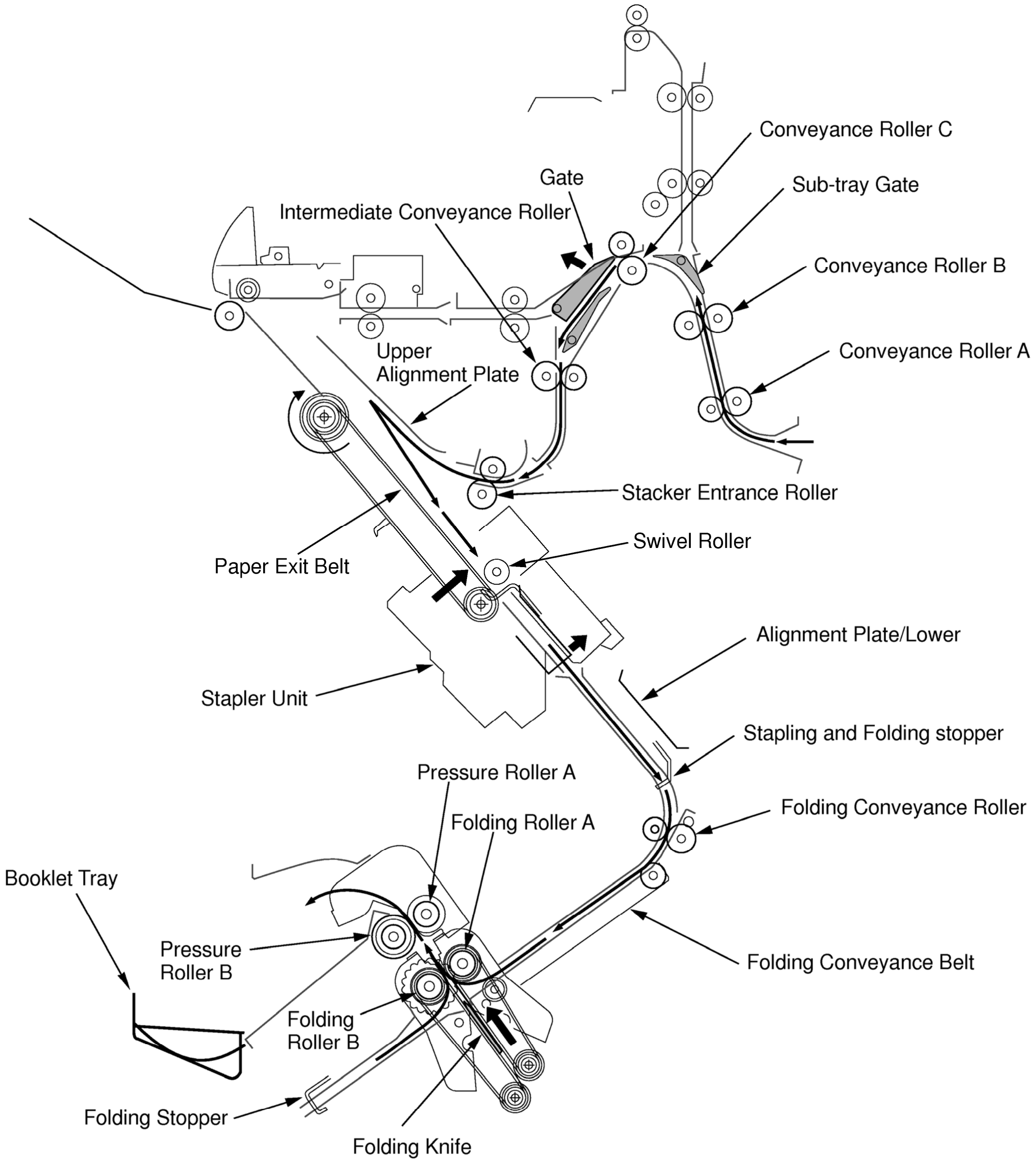
* The above steps (1) to (3) are for paper to a maximum of A4 size.

4) The stacker section roller sends the paper to the flat-stapling stopper and the paper is lined up in the lengthwise direction.
5) The upper alignment plate lines up paper in the widthwise direction.
6) When all paper is conveyed to the stacker, the paper is stapled.
7) The second and subsequent sets are conveyed by the paper exit arm and the paper is exited to the main tray.


Paper Exit Opening
Second Stapled Set
Main Tray
Intermediate Conveyance Roller
Gate
Conveyance Roller C
Sub-tray Gate
Conveyance Roller B
Conveyance Roller A
Alignment Plate/Upper
Second Sheet
By-pass Gate
First Sheet
Stacker Entrance Roller
Swivel Roller
Flat-Stapling Stopper
Paper Exit Belt
Stapler Unit
Paper Exit Arm

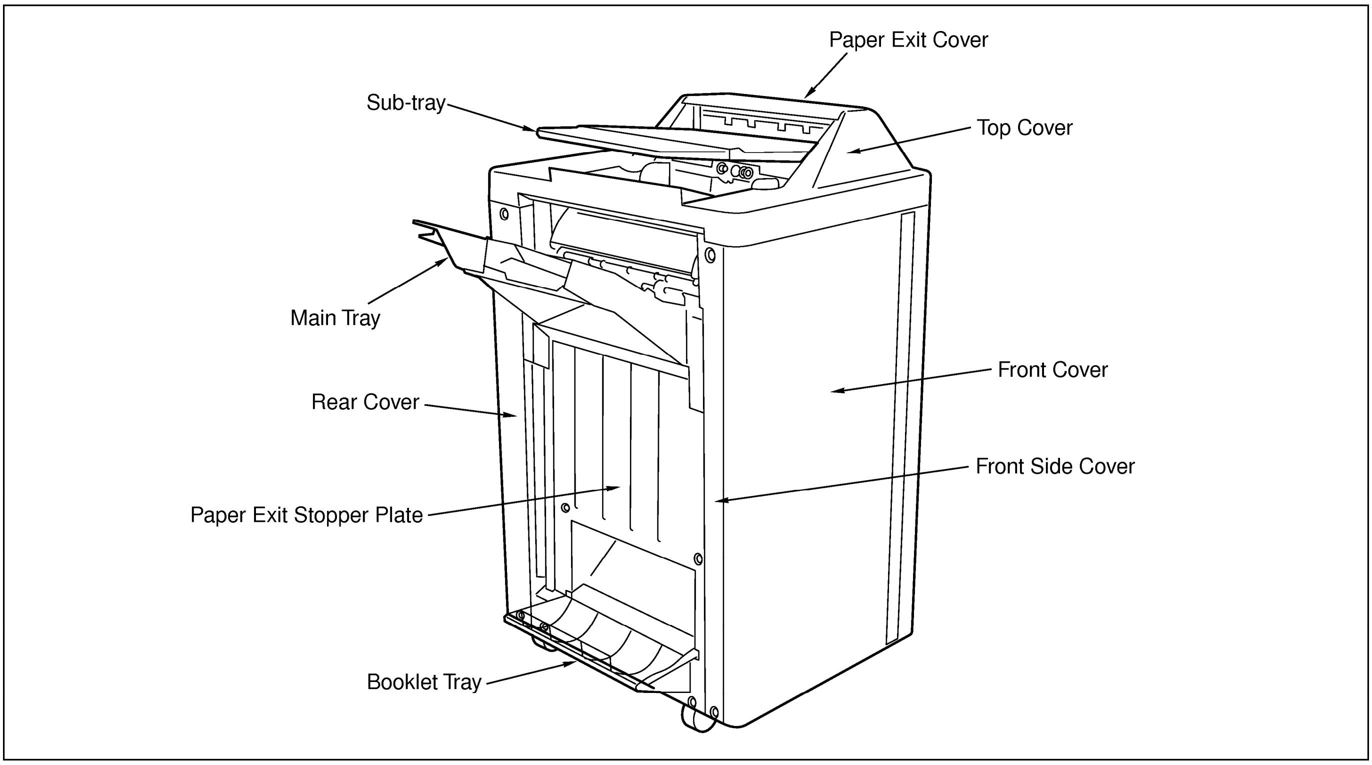
[6] Booklet Mode (FS-108BM only)

(1) The gate switches to the staple mode.
(2) The paper exit opening opens.
(3) The paper is conveyed and stacked.
(4) The stacker section roller sends the paper to the stapling-and-folding stopper and the paper is lined up in the lengthwise direction.
(5) The upper and lower alignment plate lines up paper in the widthwise direction.
(6) If stapling-and-folding has been selected, staple the stack.
(7) Release the stapling-and-folding stopper and convey the stack to the folding unit by the paper exit belt.
(8) Convey the stack up to the folding stopper, fold it with the folding knife, and eject to the booklet tray.


Conveyance Roller C
Gate
Sub-tray Gate
Intermediate Conveyance Roller
Conveyance Roller B
Conveyance Roller A
Upper
Alignment Plate
Stacker Entrance Roller
Swivel Roller
Paper Exit Belt
Alignment Plate/Lower
Stapler Unit
Stapling and Folding stopper
Pressure Roller A
Folding Conveyance Roller
Folding Roller A
Booklet Tray
Pressure
Roller B
Folding Conveyance Belt
Folding
Roller B
Folding Stopper
Folding Knife

EXTERNAL SECTION

[1] Composition (FS-108/FS-108BM)


Paper Exit Cover
Sub-tray
Top Cover
Main Tray
Front Cover
Rear Cover
Front Side Cover
Paper Exit Stopper Plate
Booklet Tray

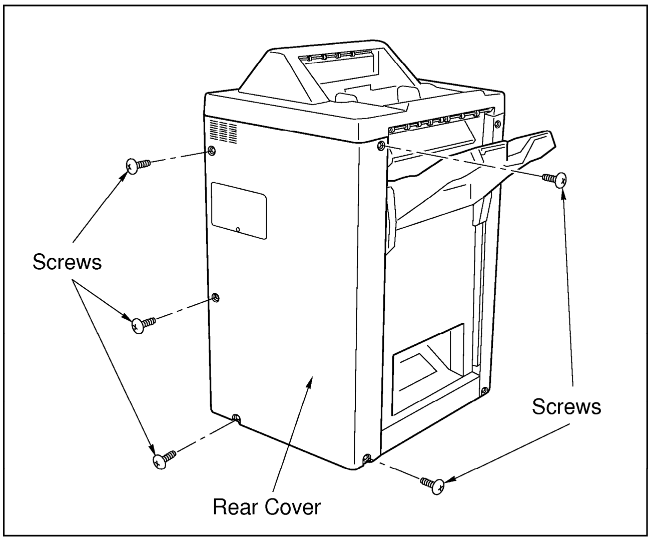
[2] Disassembly and Reassembly

⚠ **CAUTION: Be sure that the power cord has been unplugged from the outlet.**

1. Removing and Reinstalling the Rear Cover

a. Procedure

(1) Remove the 5 set screws holding the rear cover in place, and take off the cover.


Screws
Screws
Rear Cover

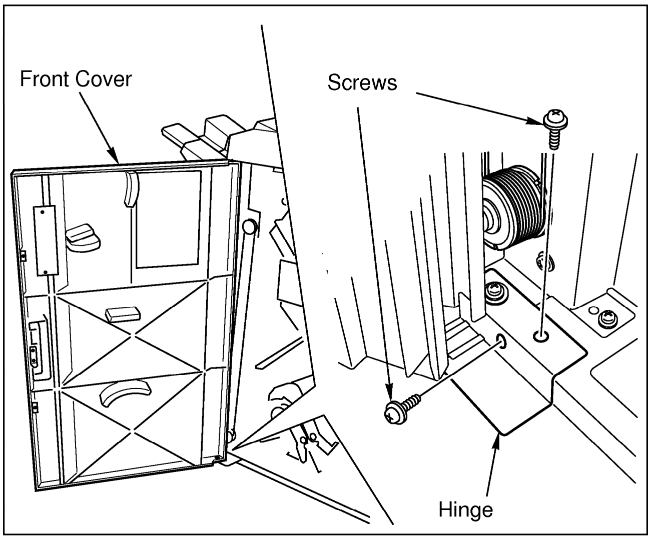
(2) Reinstall the rear cover in the opposite sequence to removal.

2. Removing and Reinstalling the Front Cover

a. Procedure

(1) Open the front cover.

(2) Remove the 2 set screws holding the bottom hinge in place, and take off the front cover.

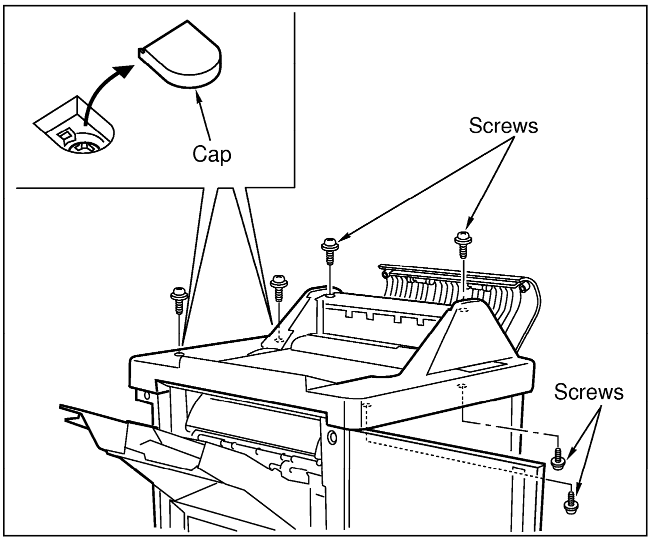

Front Cover
Screws
Hinge

(3) Reinstall the front cover in the opposite sequence to removal.

3. Removing and Reinstalling the Top Cover

a. Procedure

(1) Remove the sub-tray.
(2) Open the paper exit cover.
(3) Remove the two caps.
(4) Open the front cover.
(5) Remove the 6 set screws holding the top cover in place, and take off the cover.

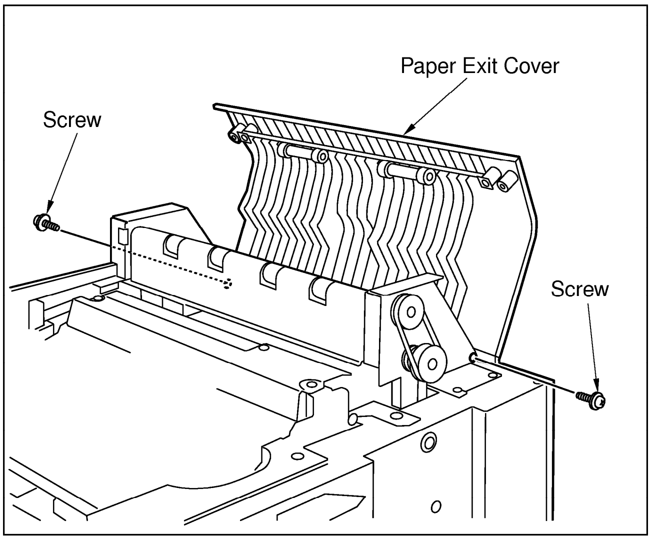


(6) Reinstall the top cover in the opposite sequence to removal.

4 Removing and Reinstalling the Paper Exit Cover

a. Procedure

(1) Remove the top cover.
(2) Remove the 2 set screws holding the paper exit cover in place, and take off the paper exit cover.



(3) Reinstall the paper cover in the opposite sequence to removal.

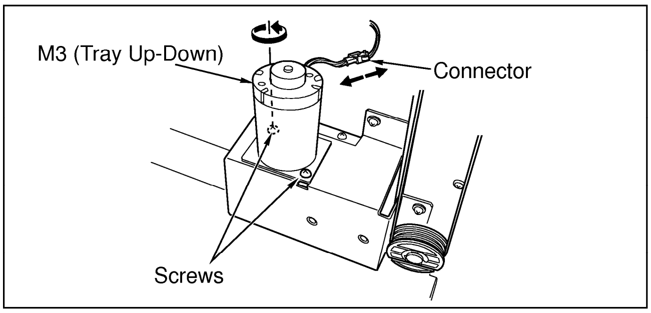
5. Removing and Reinstalling the Main Tray

a. Procedure

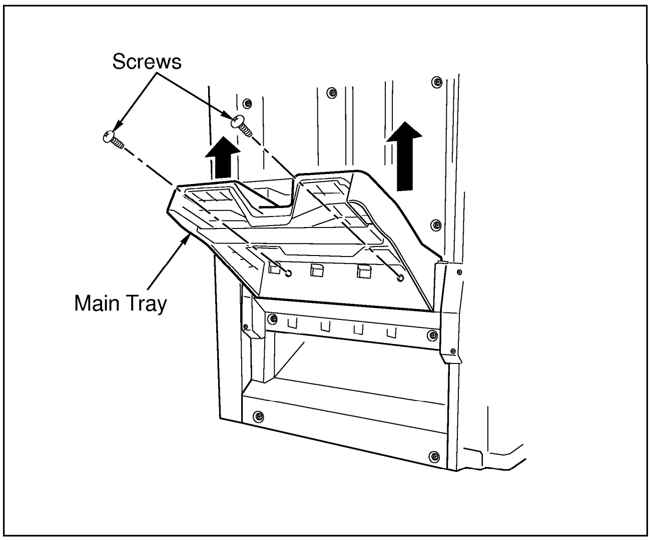
(1) Remove the rear cover.

(2) Detach the connector and remove the 2 set screws holding motor M3 (tray up-down motor) in place. Remove M3.

CAUTION: Support the main tray with your hand when removing M3.


M3 (Tray Up-Down)
Connector
Screws

(3) Remove the 2 set screws holding the main tray in place, and lift the main tray up and off.

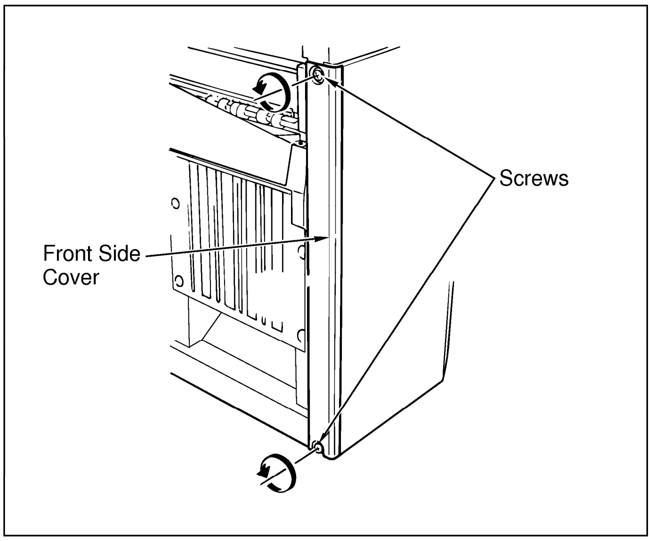

Screws
Main Tray

(4) Reinstall the main tray in the opposite sequence to removal.

6. Removing and Reattaching the Front Side Cover

a. Procedure

(1) Remove the 2 set screws holding the front side cover in place, and take off the front side cover.


Screws
Front Side Cover

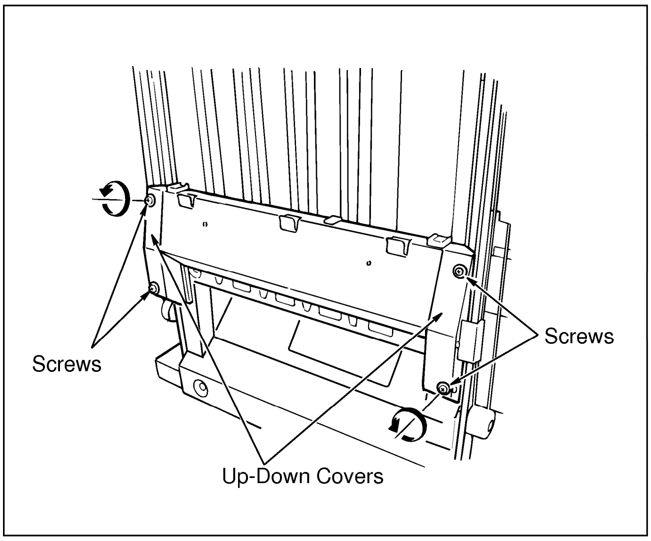
(2) Reinstall the front side cover in the opposite sequence to removal.

7. Removing and Reinstalling the Paper Exit Stopper Plate

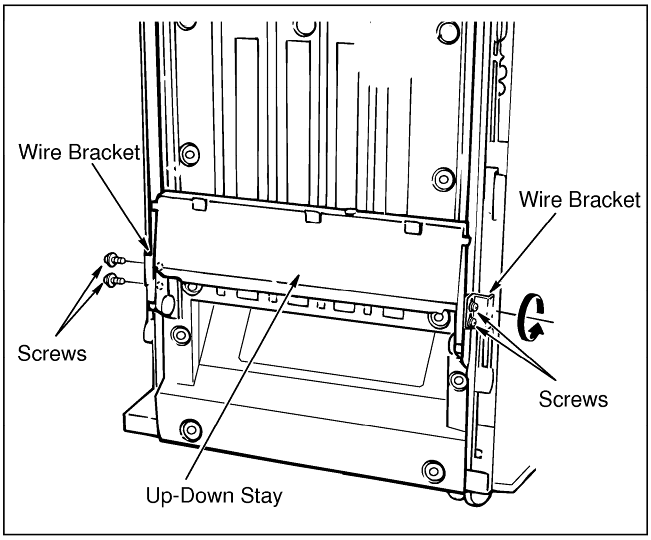
a. Procedure

(1) Remove the following parts.
- Rear cover
- Main tray
- Booklet tray
- Front cover
- Front side cover

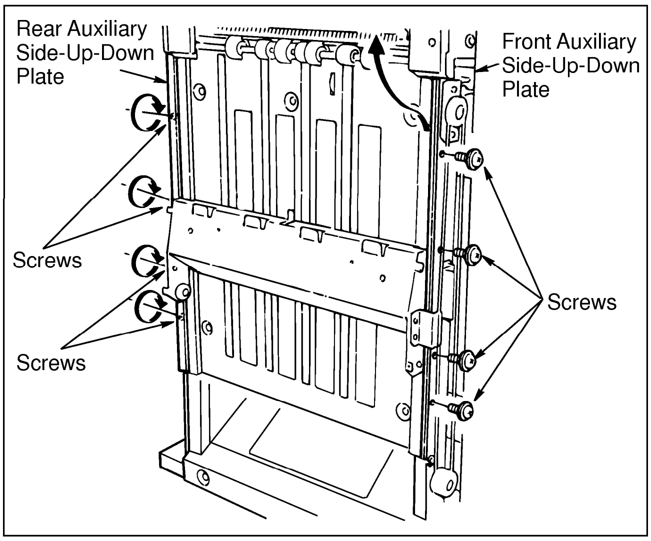
(2) Remove the 4 set screws holding the left and right up-down covers in place, and remove these two covers.


Screws
Screws
Up-Down Covers

(3) Remove the 4 set screws from the front and rear wire brackets (two screws at each bracket), and then remove the up-down stay.


Wire Bracket
Wire Bracket
Screws
Screws
Up-Down Stay

(4) Remove 8 set screws and take off the front and rear auxiliary side-up-down plates.


Rear Auxiliary Side-Up-Down Plate
Front Auxiliary Side-Up-Down Plate
Screws
Screws
Screws

(5) Remove the two plates (front and back plates) at the booklet exit.

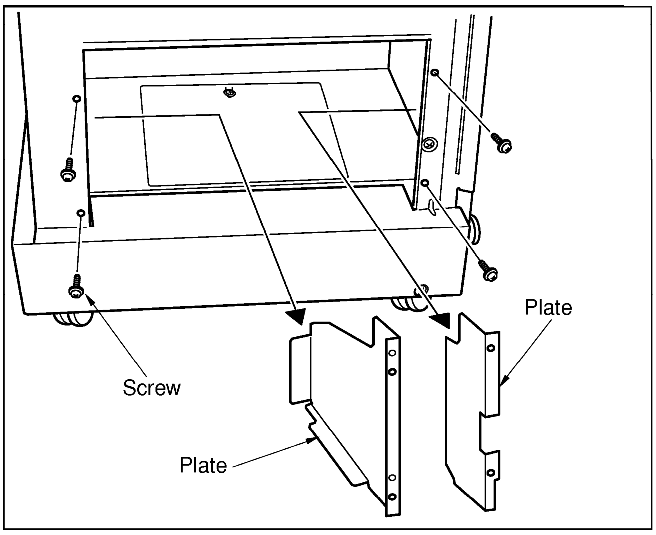
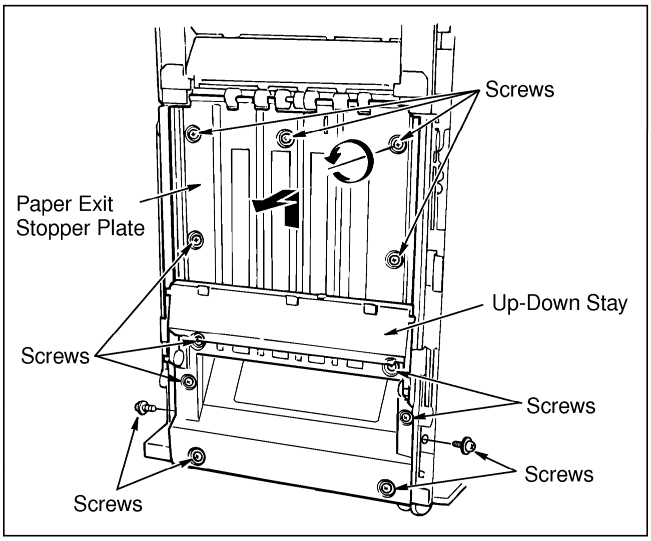


Plate
Screw
Plate

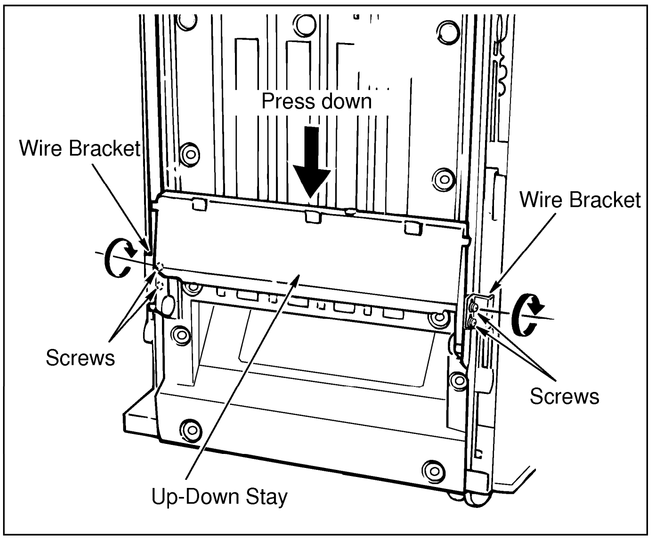
(6) Remove 13 more set screws, and take off the paper exit stopper.


Screws
Paper Exit Stopper Plate
Up-Down Stay
Screws
Screws
Screws
Screws

(7) Remove the up-down stay. (See "Removing and reattaching the up-down stay".)

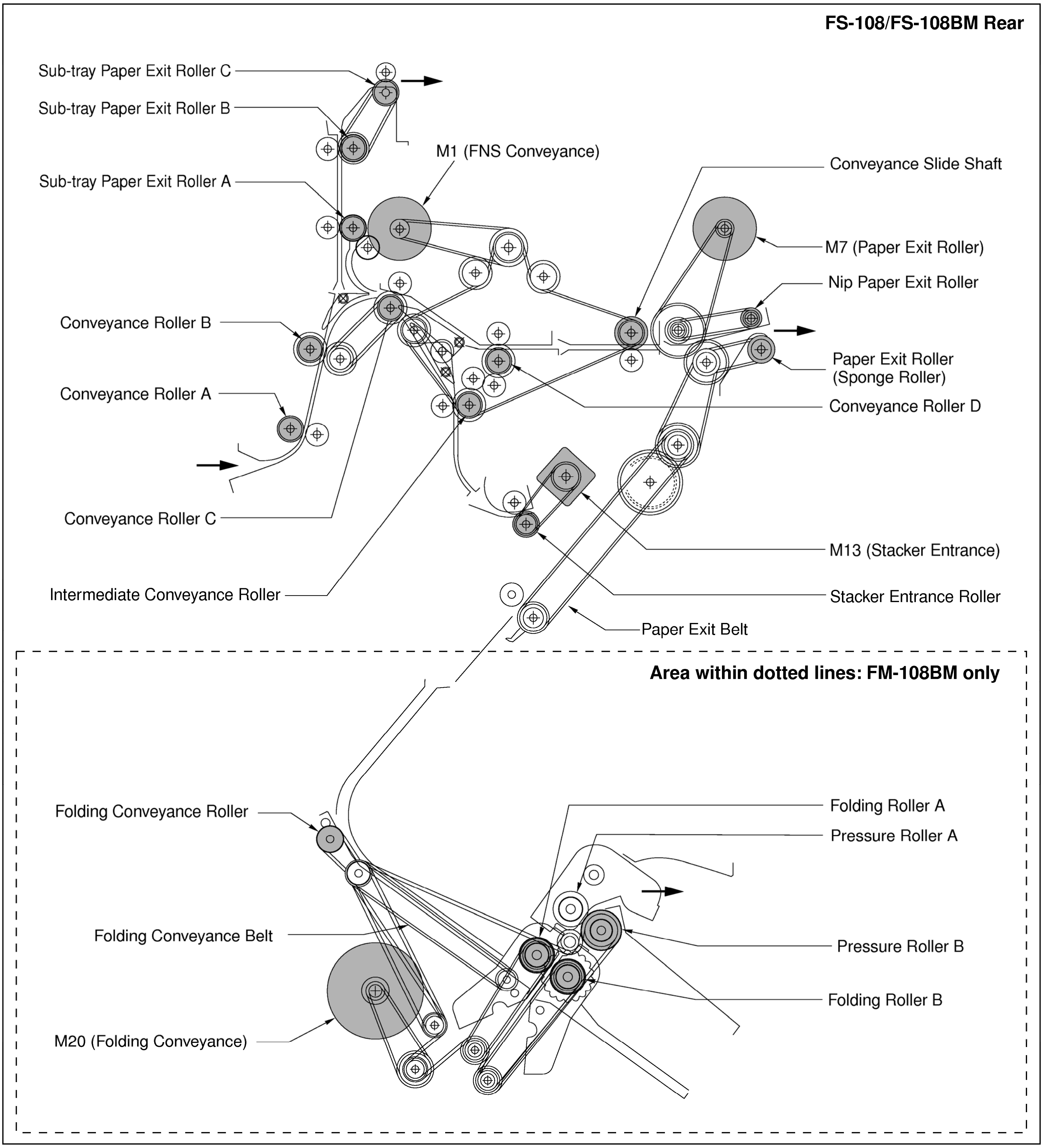
(8) Reinstall the stopper in the opposite sequence to removal. But note the following caution.

CAUTION: Be sure to press down on the up-down stay while tightening the 4 screws for the wire brackets.


Press down
Wire Bracket
Wire Bracket
Screws
Screws
Up-Down Stay

Conveyance Section

[1] Composition


FS-108/FS-108BM Rear
Sub-tray Paper Exit Roller C
Sub-tray Paper Exit Roller B
M1 (FNS Conveyance)
Conveyance Slide Shaft
Sub-tray Paper Exit Roller A
M7 (Paper Exit Roller)
Nip Paper Exit Roller
Conveyance Roller B
Paper Exit Roller (Sponge Roller)
Conveyance Roller A
Conveyance Roller D
Conveyance Roller C
M13 (Stacker Entrance)
Intermediate Conveyance Roller
Stacker Entrance Roller
Paper Exit Belt
Area within dotted lines: FM-108BM only
Folding Conveyance Roller
Folding Roller A
Pressure Roller A
Folding Conveyance Belt
Pressure Roller B
Folding Roller B
M20 (Folding Conveyance)

[2] Mechanisms

1. Paper Conveyance

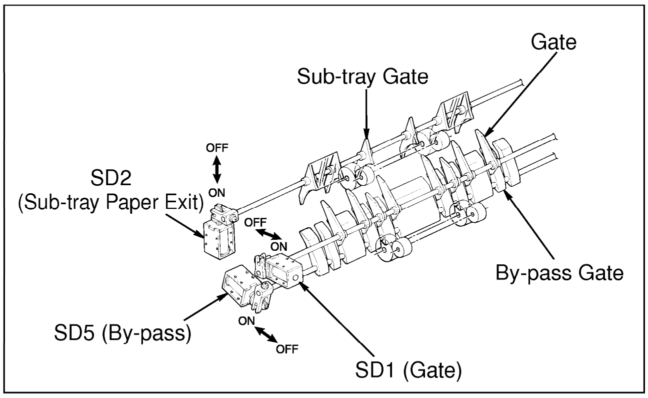
Paper conveyance is carried out by conveyance rollers A, B, C, and D; the intermediate conveyance roller; the conveyance slide shaft; and sub-tray paper exit rollers A, B, and C. These components are driven by M1 (FNS conveyance) by means of a timing belt.

Stacking is implemented by the stacker entrance roller and the swivel roller. These rollers are driven by the M13 (stacker entrance) by means of a timing belt.

Ejection to the main tray (following staple processing) is implemented by the stacker paper exit belt arm and the paper exit roller. These components are driven by the M7 (paper exit).

Ejection to the booklet tray is implemented by the folding conveyance roller, the folding conveyance belt, the folding knife, folding rollers A and B, and pressure rollers A and B. The folding knife is driven by M19 (folding knife). The conveyance belt, folding rollers, and pressure rollers are driven by the M20 (folding conveyance) by means of a timing belt.

2. Paper Path Switching

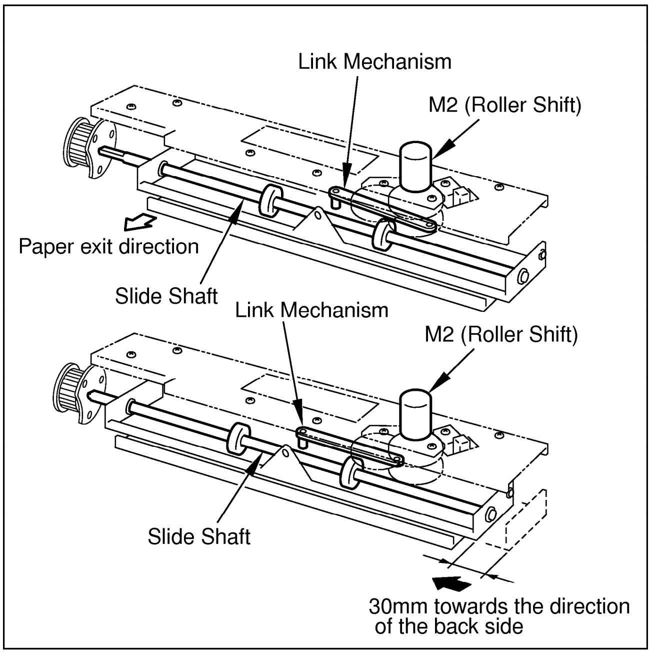

Gate
Sub-tray Gate
OFF
ON
SD2
(Sub-tray Paper Exit)
OFF
ON
By-pass Gate
SD5 (By-pass)
ON
OFF
SD1 (Gate)

Path switching is carried out by the gate, the sub-tray gate, and the by-pass gate. Each of these is controlled by the ON/OFF action of a corresponding solenoid: SD1 (gate), SD2 (sub-tray paper exit), and SD5 (by-pass), respectively.

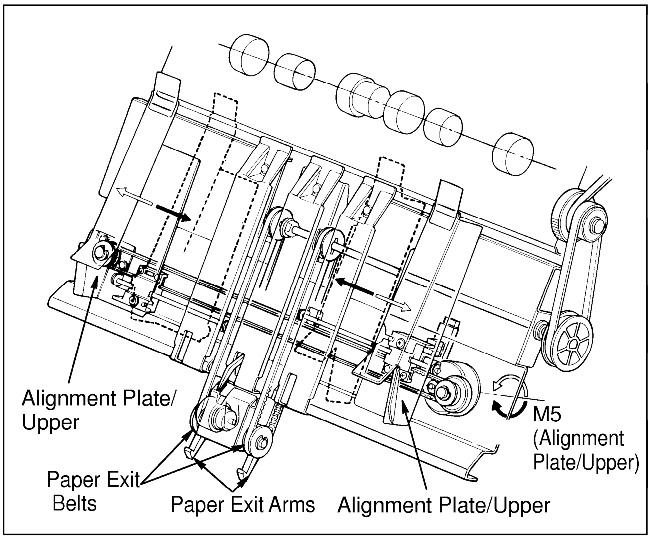
3. Shift Unit Sort Shift Operation

(1) Paper entering the shift unit is fed toward the paper exit direction by the action of the slide shaft.

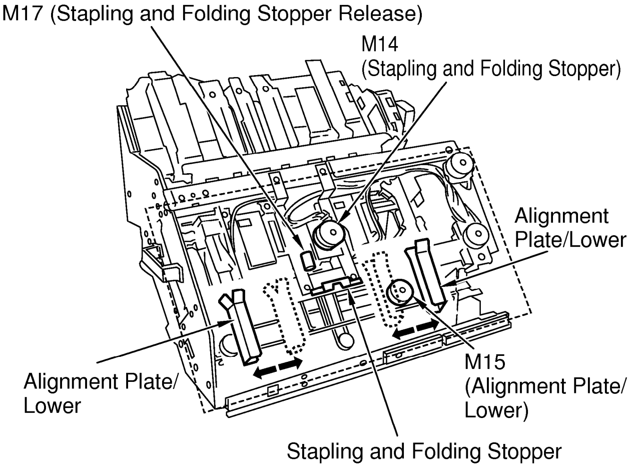
(2) Driving by M2 (roller shift) causes the linkage to shift the slide shaft and paper 30mm toward the rear.


Link Mechanism
M2 (Roller Shift)
Paper exit direction
Slide Shaft
Link Mechanism
M2 (Roller Shift)
Slide Shaft
30mm towards the direction of the back side

4. Stacker Unit


Alignment Plate/
Upper
Paper Exit
Belts
Paper Exit Arms
Alignment Plate/Upper
M5
(Alignment
Plate/Upper)

FS-108BM Only


M17 (Stapling and Folding Stopper Release)
M14
(Stapling and Folding Stopper)
Alignment
Plate/Lower
Alignment Plate/
Lower
M15
(Alignment Plate/
Lower)
Stapling and Folding Stopper

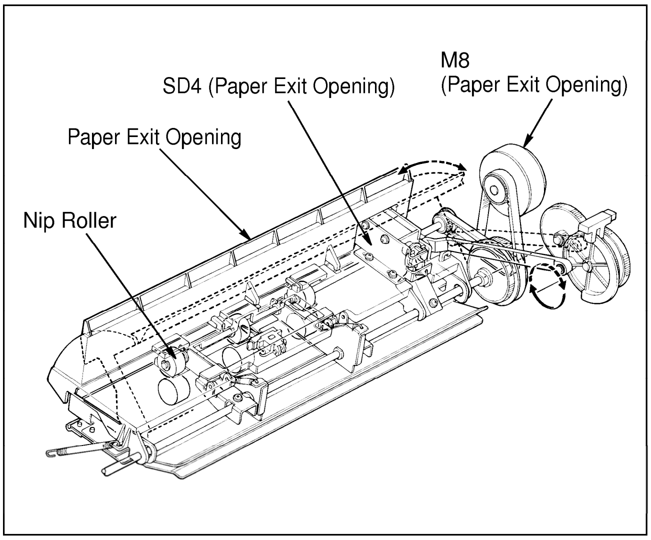
Paper Alignment (Staple Mode (Flat Stapling))
Sheets conveyed into the stacker are aligned by the oscillation of the (front and rear) alignment plates/upper. The alignment plates/upper are driven by M5 (alignment plate/upper).

Paper Alignment (Booklet Mode (FS-108BM only))
Sheets conveyed into the stacker are aligned by the movement of the (front and rear) alignment plates/upper and the (front and rear) alignment plates/lower. The alignment plates/upper are driven by M5 (alignment plate/upper); the alignment plates/lower are driven by M15 (alignment plate/lower). The stapling-and-folding stopper is moved by M14 (stapling-and-folding stopper) and is released by M17 (stapling-and-folding stopper release).

Paper Exiting
Stapled paper is sent to the paper exit by the paper exit arm. The paper exit belt is driven by M7 (paper exit-roller).

Feeding to the Folding Unit (FS-108BM only)
M17 (stapling-and-folding stopper release) releases the stapling-and-folding stopper and feeds the paper into the folding unit.

5. Paper Exit Opening Unit

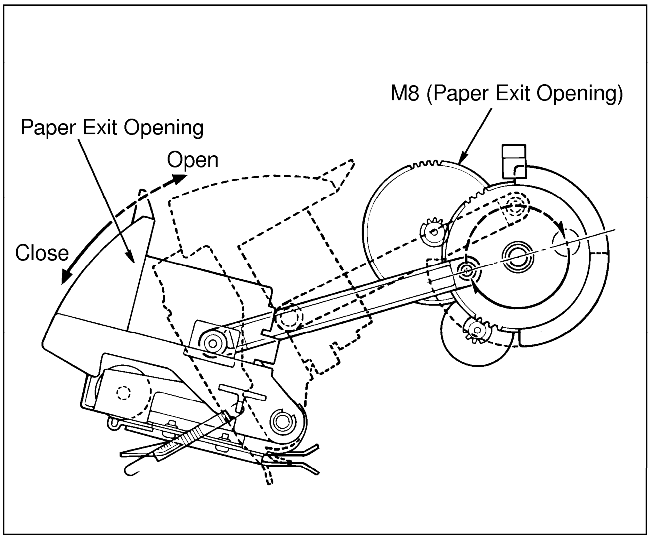

SD4 (Paper Exit Opening)
M8
(Paper Exit Opening)
Paper Exit Opening
Nip Roller

a. Staple Mode and Booklet Mode Operation for Paper Sizes A4R and Above

Because paper of this size juts out from the stacker, the paper exit opening is held open from the start of copying until the completion of stapling.

b. Paper Exit of the Staple Mode (Flat Stapling)

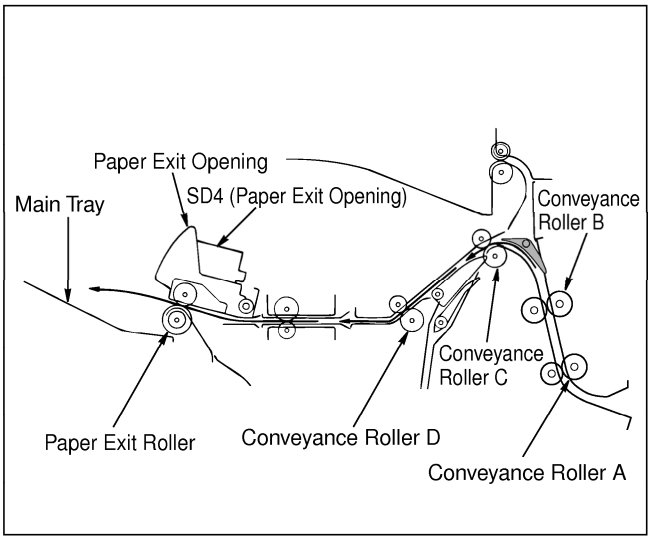
Upon completion of stapling, the paperr exit closes, and the paper is grasped and ejected to the main tray. The opening and closing of the paper exit is controlled by M8 (paper exit opening).

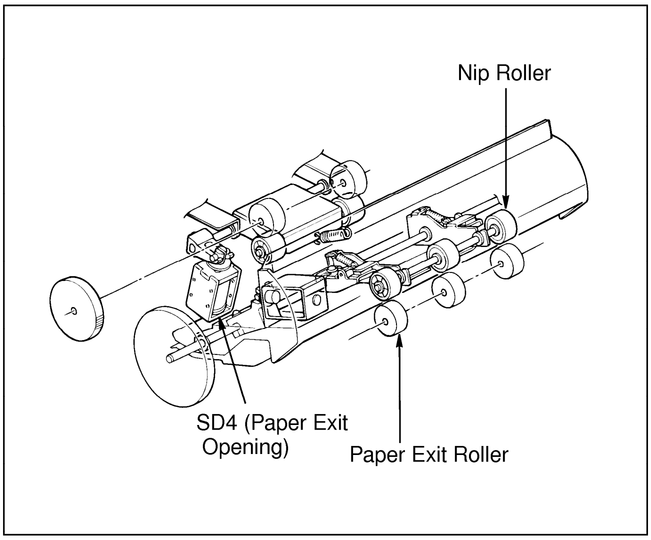

M8 (Paper Exit Opening)
Paper Exit Opening
Open
Close

c. Pressure of the Paper Exit Roller

The paper exit roller turns more slowly than the conveyance rollers (A, B, C, and D), and remains unengaged by the nip roller except during ejection.

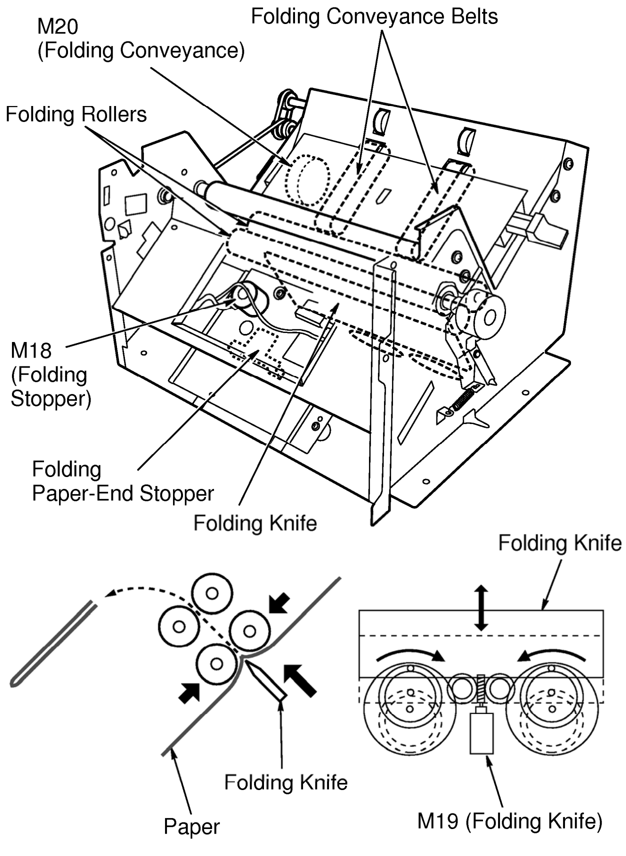
When paper reaches the paper exit opening, the paper exit roller is engaged by the nip roller and the paper is ejected to the main tray. Engagement and release is controlled by SD4 (paper exit opening).


Paper Exit Opening
Main Tray
SD4 (Paper Exit Opening)
Conveyance Roller B
Conveyance Roller C
Paper Exit Roller
Conveyance Roller D
Conveyance Roller A


Nip Roller
SD4 (Paper Exit Opening)
Paper Exit Roller

6. Folding by the Folding Unit (FS-108BM only)

Paper is conveyed to the folding stopper by the action of the folding conveyance roller and the folding conveyance belts, and is then folded by the action of the folding knife and the folding rollers. The folding conveyance roller, the folding conveyance belts, the folding rollers, and the pressure roller are driven by M20 (folding conveyance). M18 (folding stopper) drives the folding stopper. M19 (folding knife) drives the folding knife.


M20
(Folding Conveyance)
Folding Conveyance Belts
Folding Rollers
M18
(Folding
Stopper)
Folding
Paper-End Stopper
Folding Knife
Folding Knife
Folding Knife
Paper
M19 (Folding Knife)

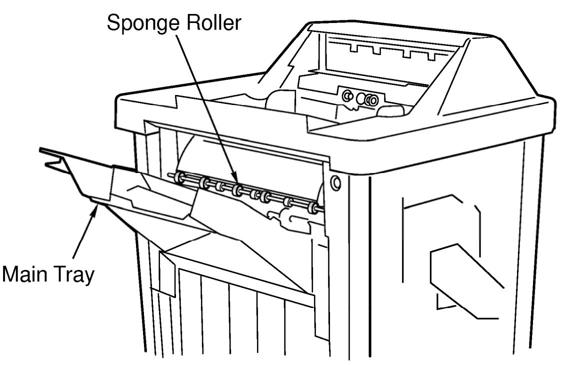
[3] Disassembly and Reassembly

⚠ **CAUTION: Be sure that the power cord has been unplugged from the outlet.**

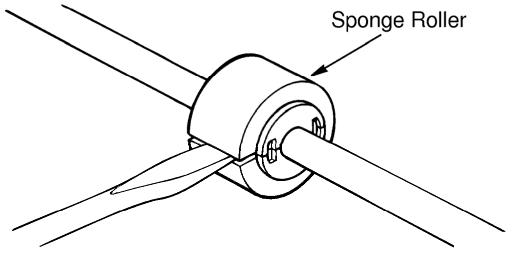
1. Replacing a Paper Exit Roller (Sponge Roller)

a. Procedure

(1) Run the copier in mode 47 (code 75-06) to lower the main tray.

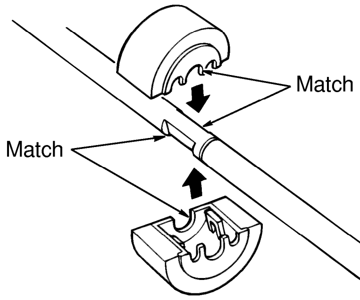

Sponge Roller
Main Tray

(2) Insert the end of a screwdriver into the slot in the sponge roller, and twist the screwdriver to pry the roller off.


Sponge Roller

(3) Take the two halves of the new sponge roller and align their indentations with the indentations on the roller shaft.

(4) Press the two halves of the roller together until the click into place.

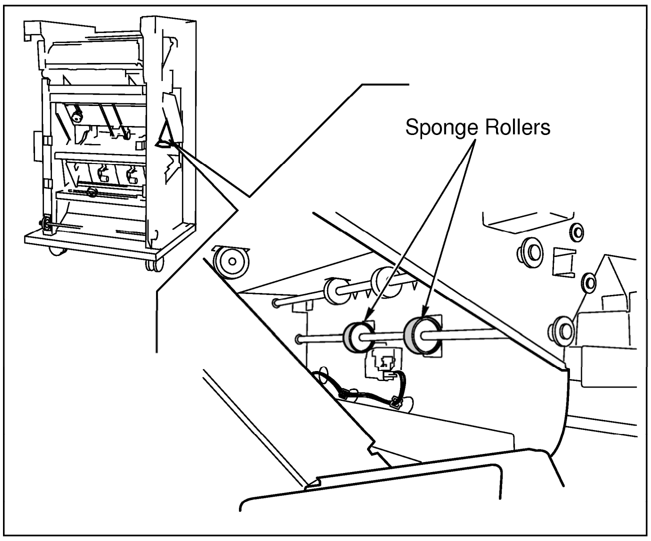

Match
Match

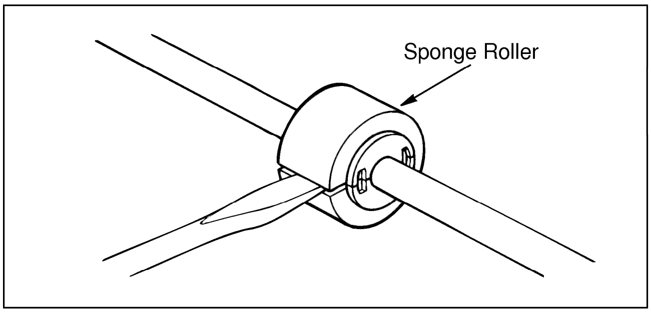
2. Replacing an Intermediate Conveyance Roller (Sponge Roller)

a. Procedure

(1) Open the front cover and pull out the stacker/stapler unit.

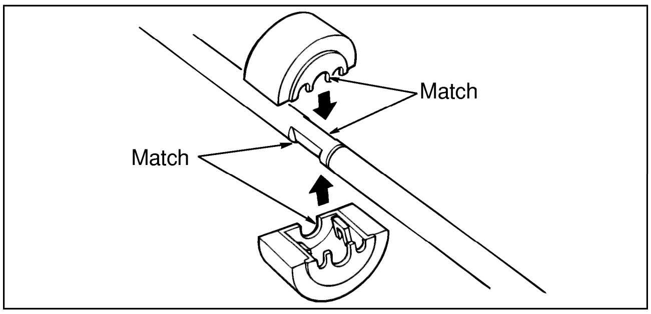
(2) Insert the end of a screwdriver into the slot in the sponge roller, and twist the screwdriver to pry the roller off.


Sponge Rollers


Sponge Roller

(3) Take the two halves of the new sponge roller and align their indentations with the indentations on the roller shaft.

(4) Press the two halves of the roller together so that they click into place.


Match
Match

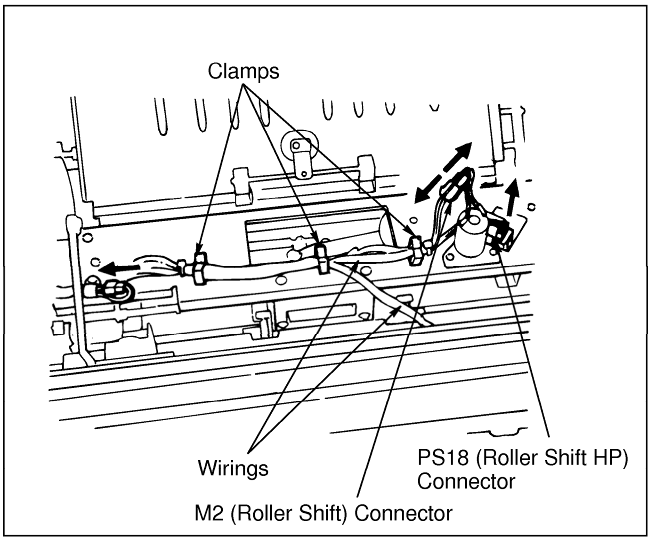
3. Removing and Reinstalling the Shift Unit

a. Procedure

(1) Remove the following parts.
- Rear cover
- Top cover
- PI-108 (if installed)

(2) Detach the M2 (roller shift) and PS18 (roller shift HP) connectors.

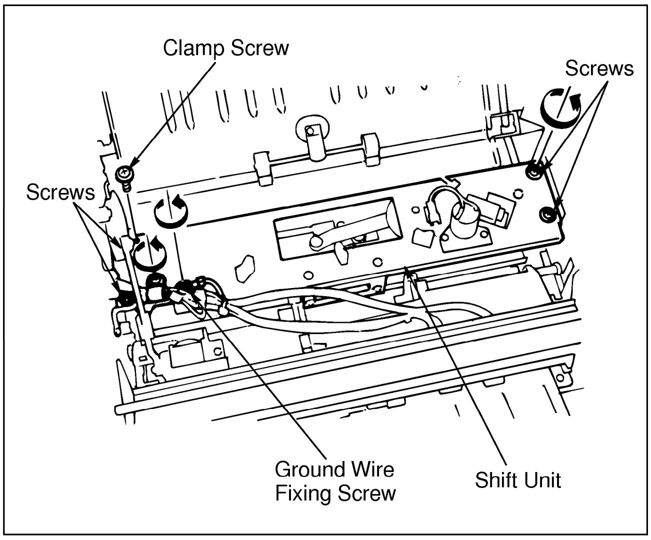
(3) Remove the wiring from the three clamps.


Clamps
Wirings
PS18 (Roller Shift HP) Connector
M2 (Roller Shift) Connector

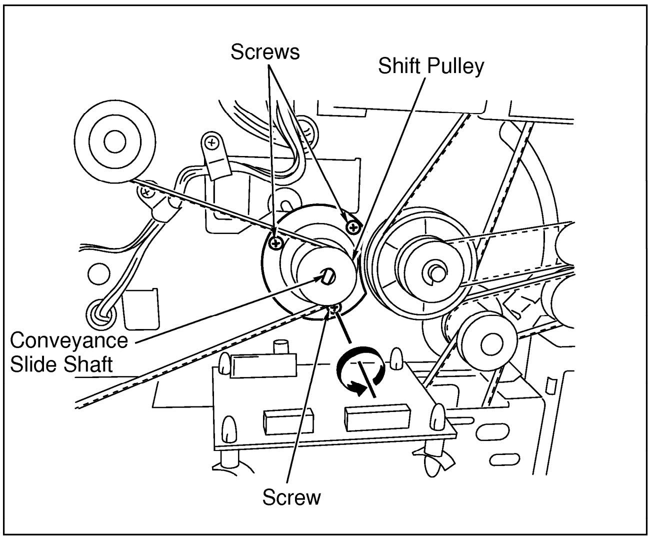
(4) Remove the ground wire fixing screw.

(5) Remove the clamp set screw.

(6) Remove 4 more set screws (see illustration).


Clamp Screw
Screws
Screws
Ground Wire Fixing Screw
Shift Unit

(7) Remove 3 more set screws and remove the shift pulley.
(8) Slide the conveyance slide shaft and take out the shift unit.


Screws
Shift Pulley
Conveyance Slide Shaft
Screw

(9) Reinstall the shift unit in the opposite sequence to removal.

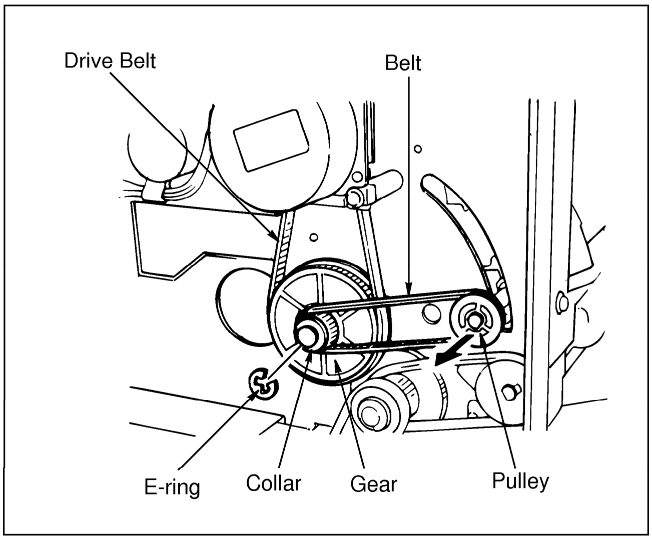
CAUTION: When reinstalling the shift unit, be sure to align the conveyance slide shaft with the hole in the shift pulley.

4. Removing and Reinstalling the Paper Exit-Opening Unit

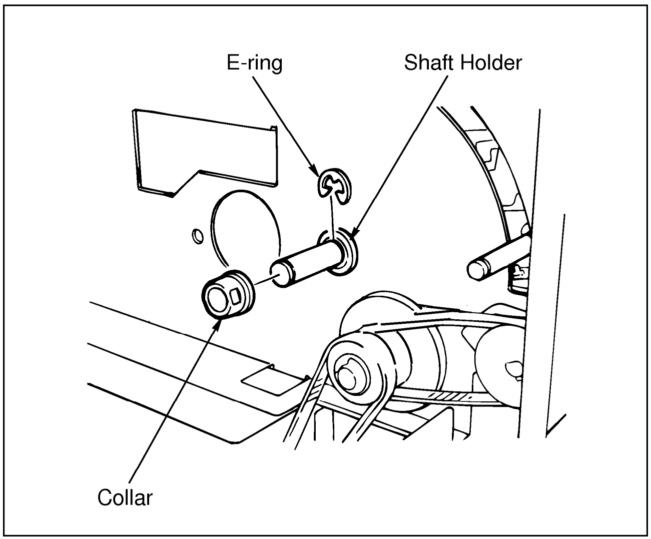
a. Procedure

(1) Remove the following parts.
- Rear cover
- Top cover
- Front side cover
- PI-108 (if installed)
- Shift unit

(2) Remove the pulley and its belt.
(3) Remove the E-ring, and then remove the collar, the gear, and the drive belt.

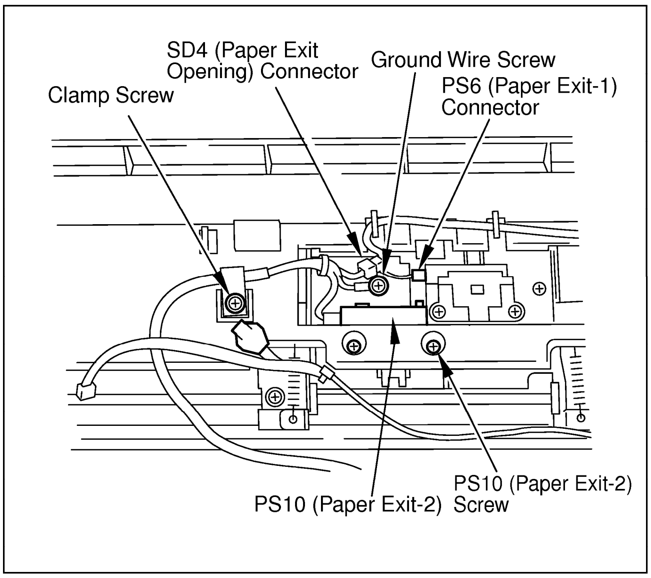

Drive Belt
Belt
E-ring
Collar
Gear
Pulley

(4) Remove the collar, E-ring, and shaft holder.

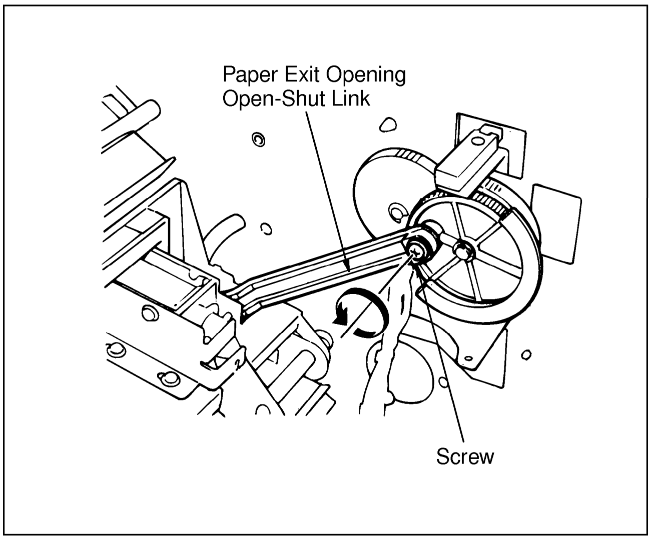

E-ring
Shaft Holder
Collar

(5) Remove the clamp set screw and the ground wire screw.
(6) Detach the SD4 (paper exit opening) and PS6 (paper exit-1) connectors.
(7) Remove the screw holding PS10 (paper exit-2) to the unit. Remove PS10 and detach the connector.

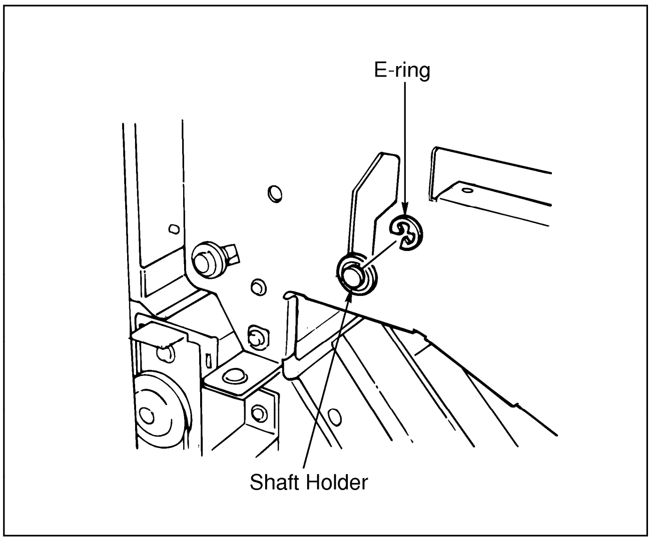
CAUTION: When withdrawing the PS10, ensure that needless force is not applied to the lever below the PS10.


SD4 (Paper Exit Opening) Connector
Ground Wire Screw
Clamp Screw
PS6 (Paper Exit-1) Connector
PS10 (Paper Exit-2) Screw
PS10 (Paper Exit-2)

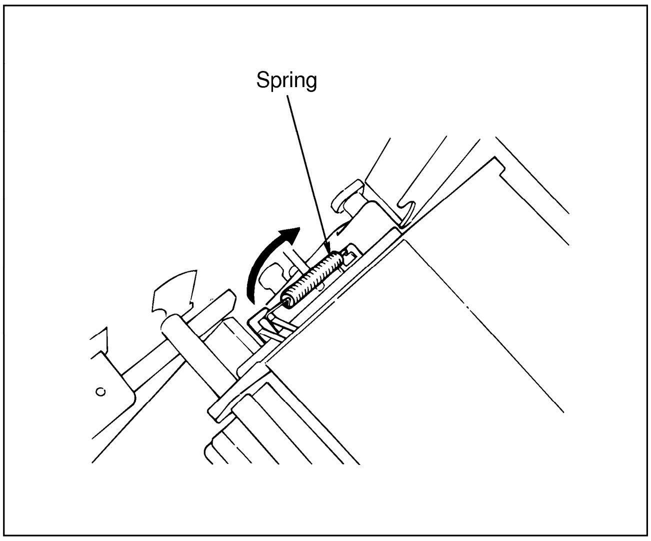
(8) Remove the paper exit opening open-shut link screw.


Paper Exit Opening Open-Shut Link
Screw

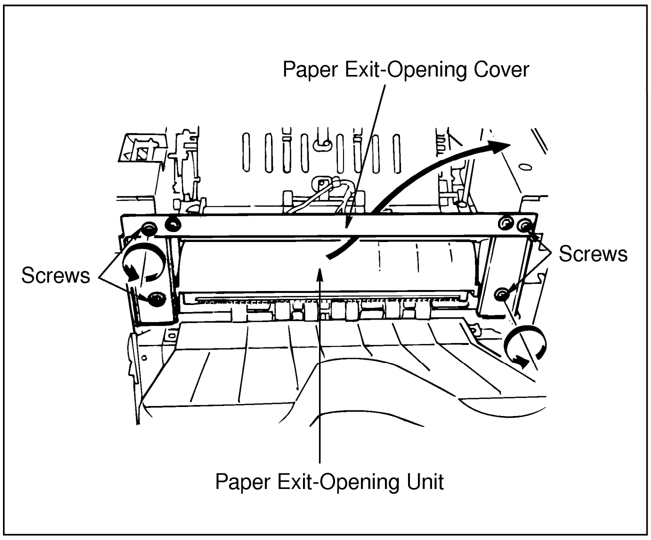
(9) Open the front cover. Remove the front side E-ring and the shaft holder.


E-ring
Shaft Holder

(10) Remove the spring.



(11) Remove the 4 set screws holding the paper exit-opening cover in place, and take off the cover.
(12) Lift the paper exit-opening unit up and out.

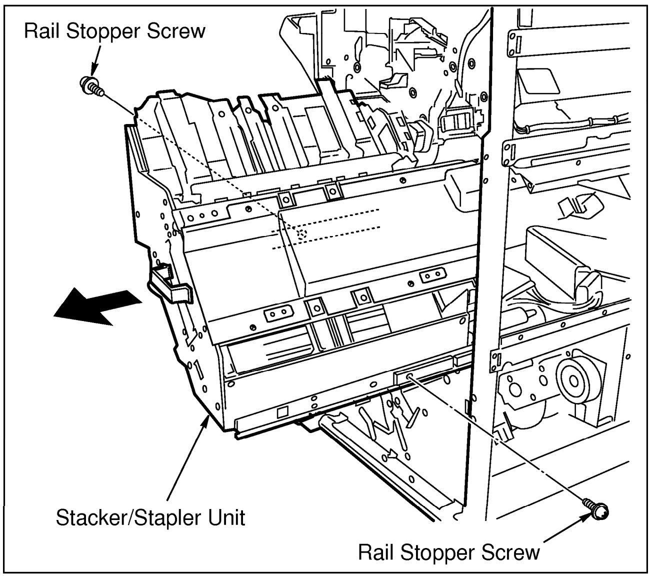

Paper Exit-Opening Cover
Screws
Screws
Paper Exit-Opening Unit

(13) Reinstall the unit in the opposite sequence to removal.

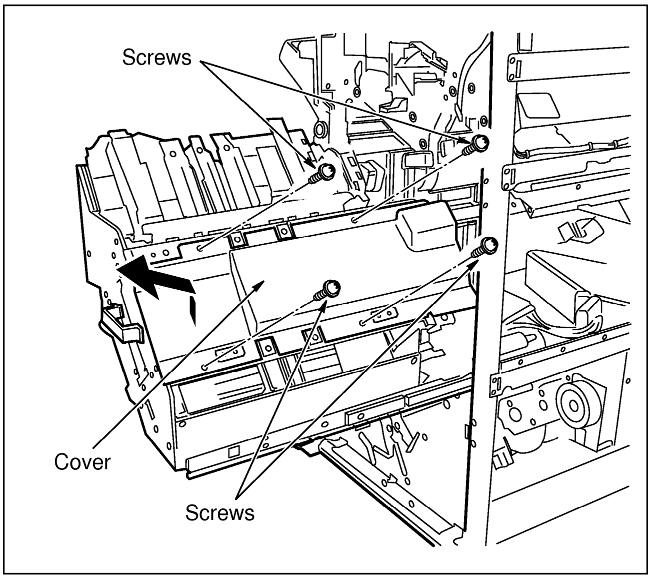
5. Removing and Reinstalling the Stacker/Stapler Unit

a. Procedure

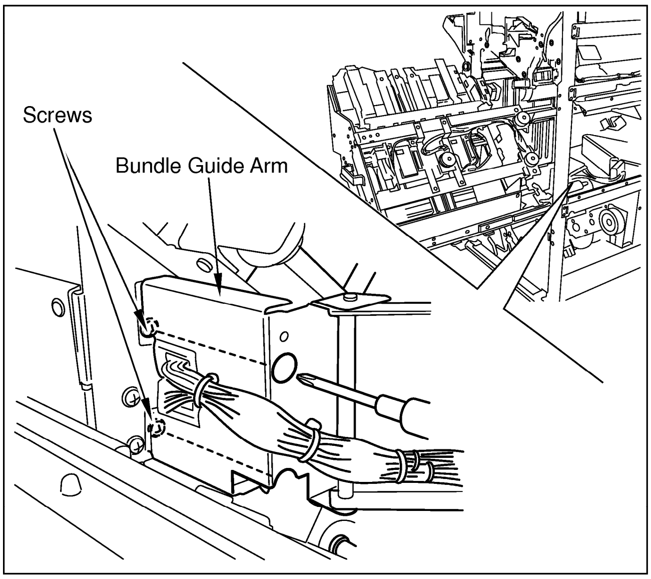
(1) Open the front cover and pull the stacker/stapler unit part of the way out..
(2) Remove the 2 rail-stopper set screws. Then pull the stacker/stapler unit all of the way out.


Rail Stopper Screw
Stacker/Stapler Unit
Rail Stopper Screw

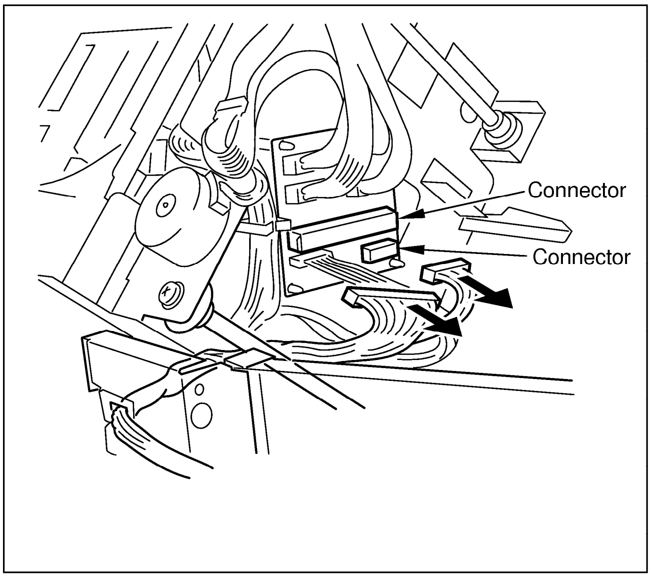
(3) Remove 4 set screws holding the cover in place, and remove the cover.


Screws
Cover
Screws

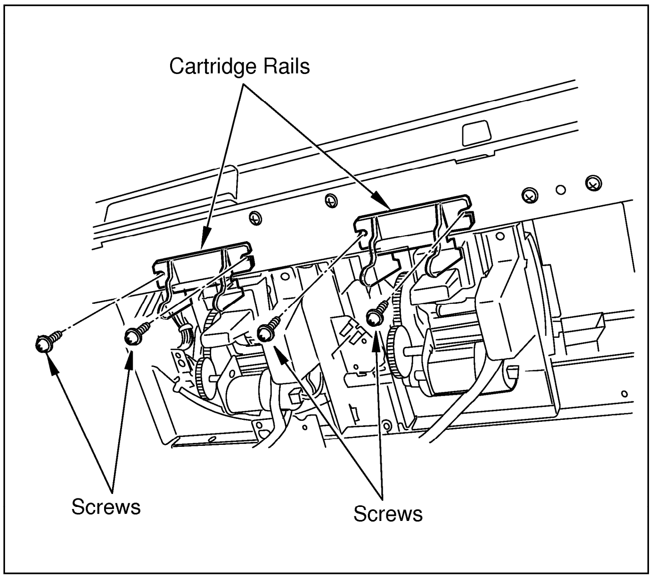
(4) Remove the 2 set screws holding the bundle guide arm to the stacker/stapler unit.


Screws
Bundle Guide Arm

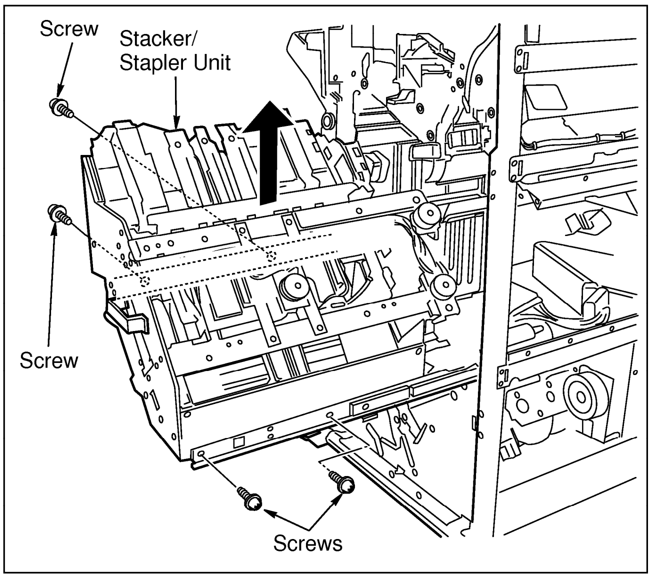
(5) Detach the two connectors from the connector board at the rear of the stacker/stapler unit.


Connector
Connector

(6) Remove the 4 set screws holding the cartridge rails in place, and take out the cartridge rails.

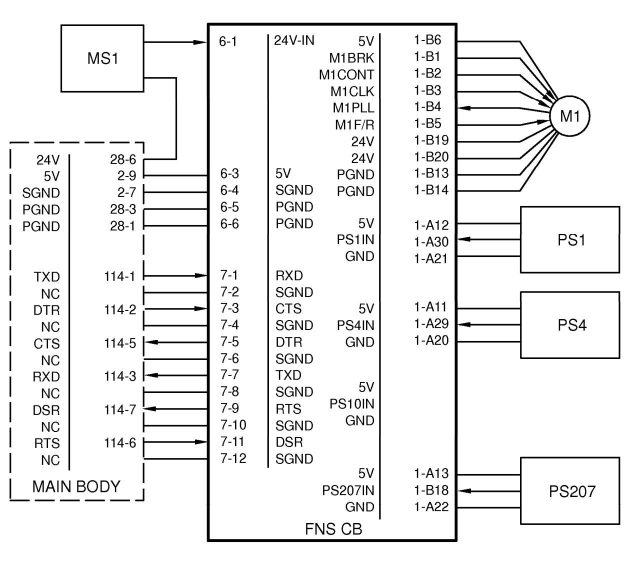

Cartridge Rails
Screws
Screws

(7) Remove the final 4 set screws holding the stacker/stapler unit in place. Remove the stacker/stapler unit.


Screw
Stacker/
Stapler Unit
Screw
Screws

(8) Reinstall the stacker/stapler unit in the opposite sequence to removal.

[4] M1 (FNS Conveyance) Control


MS1
24V 28-6
5V 2-9
SGND 2-7
PGND 28-3
PGND 28-1
TXD 114-1
NC
DTR 114-2
NC
CTS 114-5
NC
RXD 114-3
NC
DSR 114-7
NC
RTS 114-6
NC
MAIN BODY
6-1 24V-IN
6-3 5V
6-4 SGND
6-5 PGND
6-6 PGND
7-1 RXD
7-2 SGND
7-3 CTS
7-4 SGND
7-5 DTR
7-6 SGND
7-7 TXD
7-8 SGND
7-9 RTS
7-10 SGND
7-11 DSR
7-12 SGND
5V 1-B6
M1BRK 1-B1
M1CONT 1-B2
M1CLK 1-B3
M1PLL 1-B4
M1F/R 1-B5
24V 1-B19
24V 1-B20
PGND 1-B13
PGND 1-B14
M1
5V 1-A12
PS1IN 1-A30
GND 1-A21
PS1
5V 1-A11
PS4IN 1-A29
GND 1-A20
PS4
5V
PS10IN
GND
5V 1-A13
PS207IN 1-B18
GND 1-A22
PS207
FNS CB

M1 (finisher conveyance) drives paper conveyance (if main-tray exit) and paper exit (if sub-tray exit) by means of conveyance rollers A, B, C, D, conveyance slide shaft and the sub-tray paper paper exit roller A, B, C. M1 is controlled by the FNS CB (FNS control board).

1. Operation

a. Interlock

FNS paper-conveyance drive control is initiated by the ON signal from the main body START button. If MS1 (interlock) is OFF at this time, however, the finisher transmits an error signal to the main body CB and does not begin control.

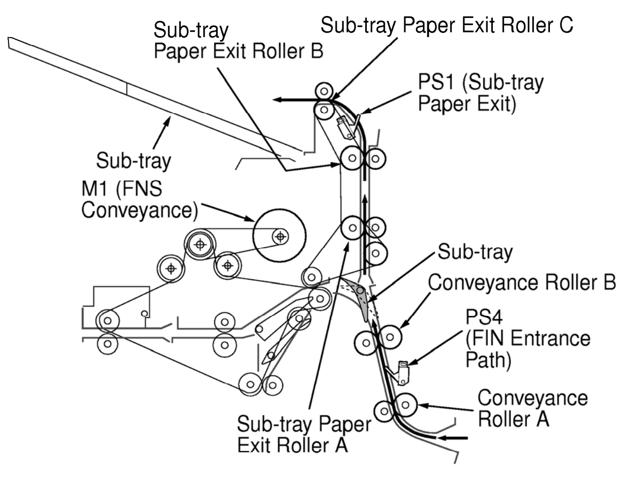
b. PS207 (paper exit cover open/close detection) control

As mentioned above, FNS paper-conveyance drive control is initiated by the ON signal from the main body START button. But if PS207 (paper exit cover open/close detector) is [H] at this time (paper exit cover is open), the FNS transmits an error signal to the main body CB and does not begin control.

c. M1 (FNS conveyance) control

(1) Main tray paper exit operation
M1 (FNS conveyance) is set ON by the ON signal of the START button and goes OFF a preset time interval after PS4 (FIN entrance passage) detects the trailing edge of the final copy paper.

(2) Sub-tray paper exit operation
M1 is set ON by the START button ON signal, and begins with rapid rotation. M1 then switches to slow rotation a preset time period after PS4 detects the trailing edge of the paper. M1 then returns to rapid rotation to prepare for transport of the next paper. M1 goes OFF a preset time period after PS4 detects the trailing edge of the final paper.


Sub-tray Paper Exit Roller B
Sub-tray Paper Exit Roller C
PS1 (Sub-tray Paper Exit)
Sub-tray
M1 (FNS Conveyance)
Sub-tray Conveyance Roller B
PS4 (FIN Entrance Path)
Conveyance Roller A
Sub-tray Paper Exit Roller A

2. Signals

a. Input signals

(1) TXD (Main-Body CB → FNS CB)
Serial data line; transmits operating status of the main body's CB to the FNS CB.

(2) DTR (Main-Body CB → FNS CB)
Request to send signal from the main body to the FNS.

(3) RTS (Main-Body CB → FNS CB)
Transmission acknowledgment signal from the main body to the FNS.

(4) 24V IN (MS1 → FNS CB)
Outputs +24V if MS1 (interlock) is ON. The power is supplied to all loads on the FNS side.

(5) PS207 IN (PS207 → FNS CB)
Inputs [L] when the sub-tray paper paper exit cover is closed.

(6) PS4 IN (PS4 → FNS CB)
Comes ON and inputs [L] when paper passes through the FNS inlet.

(7) MI PLL (M1 → FNS CB)
Monitors rotation status of M1 (FNS conveyance).
[L] is input when M1 reaches the specified speed.

b. Output signals

(1) TXD (FNS CB → Main-Body CB)
Serial data line; transmits FNS operating status to the main body's CB.

(2) RTS (FNS CB → Main-Body CB)
Request to send signal from the FNS to the main body.

(3) DTR (FNS CB → Main-Body CB)
Transmission acknowledgment signal from the FNS to the main body.

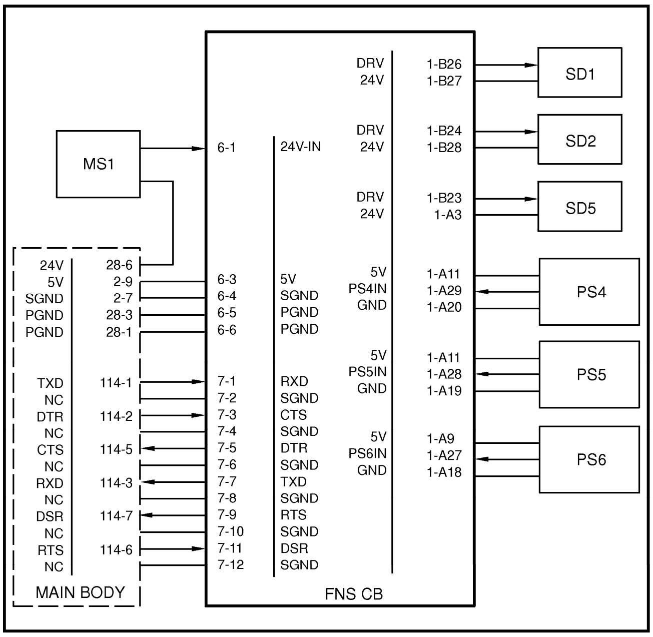
(4) M1 CONT (FNS CB → M1)
M1 (FNS conveyance) drive control signal.
[H]: OFF
[L]: ON

(5) M1 BRK (FNS CB → M1)
M1 (FNS conveyance) brake signal.
[H]: OFF
[L]: ON

(6) M1 CLK (FNS CB → M1)
Reference clock signal for controlling the speed of M1 (FNS conveyance).

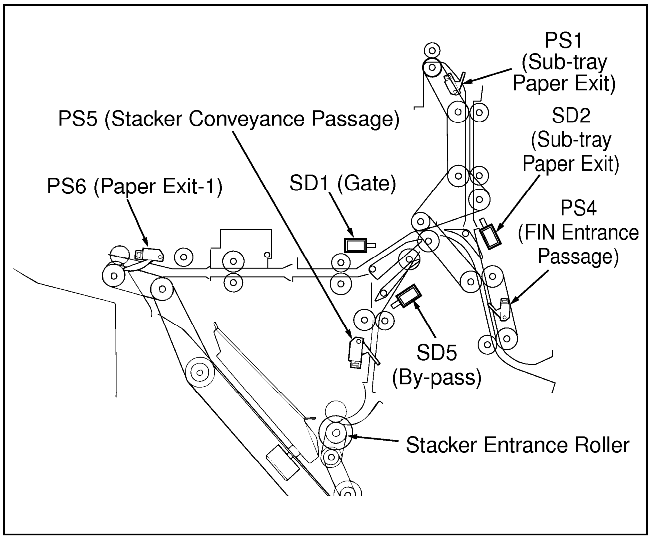
(7) M1 F/R (FNS CB → M1)
M1 (FNS conveyance) direction signal.
[H]: Counterclockwise
[L]: Clockwise

[5] Gate Control


MS1
SD1
SD2
SD5
PS4
PS5
PS6
DRV 24V 1-B26 1-B27
DRV 24V 1-B24 1-B28
DRV 24V 1-B23 1-A3
6-1 24V-IN
5V PS4IN GND 1-A11 1-A29 1-A20
5V PS5IN GND 1-A11 1-A28 1-A19
5V PS6IN GND 1-A9 1-A27 1-A18
24V 28-6
5V 2-9 6-3 5V
SGND 2-7 6-4 SGND
PGND 28-3 6-5 PGND
PGND 28-1 6-6 PGND
TXD 114-1 7-1 RXD
NC 7-2 SGND
DTR 114-2 7-3 CTS
NC 7-4 SGND
CTS 114-5 7-5 DTR
NC 7-6 SGND
RXD 114-3 7-7 TXD
NC 7-8 SGND
DSR 114-7 7-9 RTS
NC 7-10 SGND
RTS 114-6 7-11 DSR
NC 7-12 SGND
MAIN BODY
FNS CB

The paper conveyance path is switched by the ON/OFF switching of SD1 (gate), SD2 (sub-tray paper exit), and SD5 (by-pass), which are switched ON/OFF by the FNS CB (FNS control board).

1. Operation


PS1 (Sub-tray Paper Exit)
PS5 (Stacker Conveyance Passage)
SD2 (Sub-tray Paper Exit)
PS6 (Paper Exit-1)
SD1 (Gate)
PS4 (FIN Entrance Passage)
SD5 (By-pass)
Stacker Entrance Roller

a. Main-tray Paper Exit Operation (Sort, Group, and Non-Sort modes)

Paper moves through the shift unit and paper exits to the main tray, passing through the sub-tray gate and the gate. As both these gates direct the paper toward the shift-unit side by default, SD2 (sub-tray paper exit) and SD1 (gate) remain off.

b. Stacker conveyance operation (Staple mode)

Paper moves through the stacker unit to the main tray, passing the sub-tray gate, the gate, and the by-pass gate. As the sub-tray gate is already set to the stacker side, SD2 (sub-tray paper paper exit) remains off.

(1) ON timing for SD1 (gate)
SD1 comes on when the START button ON signal is received, setting the gate to the stacker side. The FNS stands by for paper conveyance to begin.

(2) Conveyance of paper sizes other than A4 and B5
The gates direct the paper into the stacker. SD5 remains OFF, as paper moves without by-pass toward the stacker entrance roller.

(3) Conveyance of A4 and B5 paper (first paper of second and subsequent sets)
SD5 comes ON a preset time period after PS4 (FIN entrance passage) detects the trailing edge of the final paper of the preceding set. This switches the by-pass gate to the by-pass side, so that the first paper of the new set is carried to that side.

(4) Conveyance of A4 and B5 paper (second and subsequent papers of second and subsequent sets)
SD5 goes OFF a preset time period after PS4 detects the trailing edge of the first sheet of the current set, closing the by-pass gate. The second sheet moves directly (without by-pass), together with the first paper, to the stacker entrance roller.
SD5 remains off for the third and subsequent sheets of the set, which move without by-pass to the stacker.

(5) OFF timing for SD1 (gate)
SD1 goes OFF a preset time period after PS6 (paper exit-1) detects the final stapled set.

c. Stacker conveyance operation (Booklet mode) (FS-108BM only)

Paper moves through the stacker unit to the folding unit, passing the sub-tray gate, the gate, and the by-pass gate. As the sub-tray gate is already set to the stacker side, SD2 remains off.

(1) ON timing for SD1 (gate)
SD1 comes on when the START button ON signal is received, setting the gate to the stacker side. The FNS stands by for paper conveyance to begin.

(2) The gates direct the paper to the stacker. SD5 remains OFF, as paper moves without by-pass toward the stacker entrance roller.

(3) OFF timing for SD1 (gate)
SD1 goes OFF a preset time period after PS6 (paper exit-1) detects the final stapled set.

d. Sub-tray paper exit operation

SD2 (sub-tray paper exit) comes on when the START button ON signal is received, setting the sub-tray gate to the sub-tray side. SD2 goes OFF a preset time period after PS4 (FIN entrance passage) detects the final sheet.

Finishing		SD1	SD2	SD5
Sort, Group, and Non-Sort modes		OFF	OFF	OFF
Staple mode, sizes A4, B5 ( ) is for sizes other than A4, B5	First paper of 2nd or subsequent set	ON	OFF	ON (OFF)
	Others	ON	OFF	OFF
Booklet mode (FS-108BM only)		ON	OFF	OFF
Sub-tray mode		OFF	ON	OFF

2. Signals

a. Input signals

(1) TXD (Main-Body CB → FNS CB)
Serial data line; transmits operating status of the main body's CB to the FNS CB.

(2) DTR (Main-Body CB → FNS CB)
Request to send signal from the main body to the FNS.

(3) RTS (Main-Body CB → FNS CB)
Transmission acknowledgment signal from the main body to the FNS.

(4) PS1 IN (PS1 → FNS CB)
Comes ON ([L]) when paper passage is detected at the sub-tray paper paper exit.

(5) PS4 IN (PS4 → FNS CB)
Comes ON ([L]) when paper passage is detected at the FNS entrance.

(6) PS5 IN (PS5 → FNS CB)
Comes ON ([L]) when paper passage is detected at the stacker entrance.

(7) PS6 IN (PS6 → FNS CB)
Comes ON ([L]) when paper passage is detected at the main-tray paper paper exit.

b. Output signals

(1) TXD (FNS CB → Main-Body CB)
Serial data line; transmits FNS operating status to the main body CB.

(2) RTS (FNS CB → Main-Body CB)
Request to send signal from the FNS to the main body.

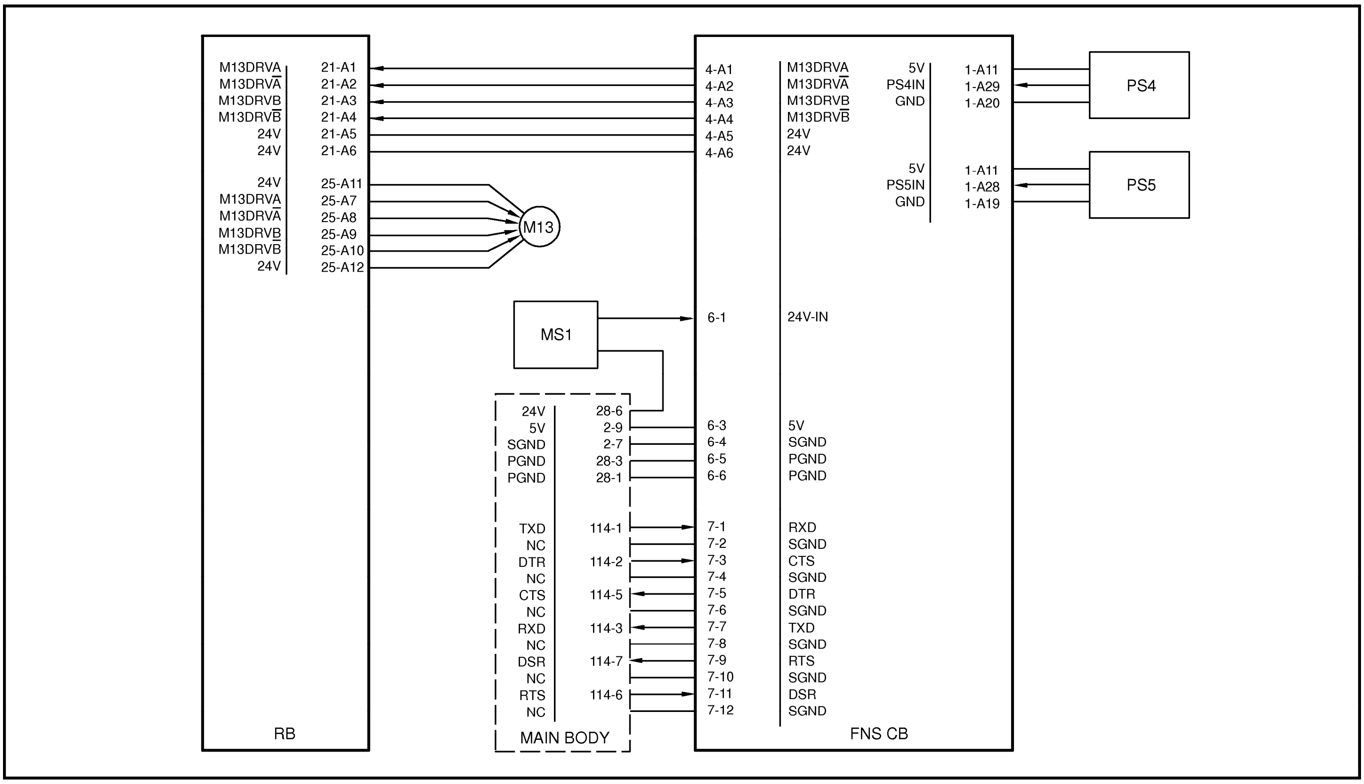
(3) DTR (FNS CB → Main-Body CB)
Transmission acknowledgment signal from the FNS to the main body.

(4) SD1 DRV (FNS CB → SD1)
SD1 (gate) drive control signal.
[H]: OFF
[L]: ON

(5) SD2 DRV (FNS CB → SD2)
SD2 (sub-tray) drive control signal.
[H]: OFF
[L]: ON

(6) SD5 DRV (FNS CB → SD5)
SD5 (by-pass) drive control signal.
[H]: OFF
[L]: ON

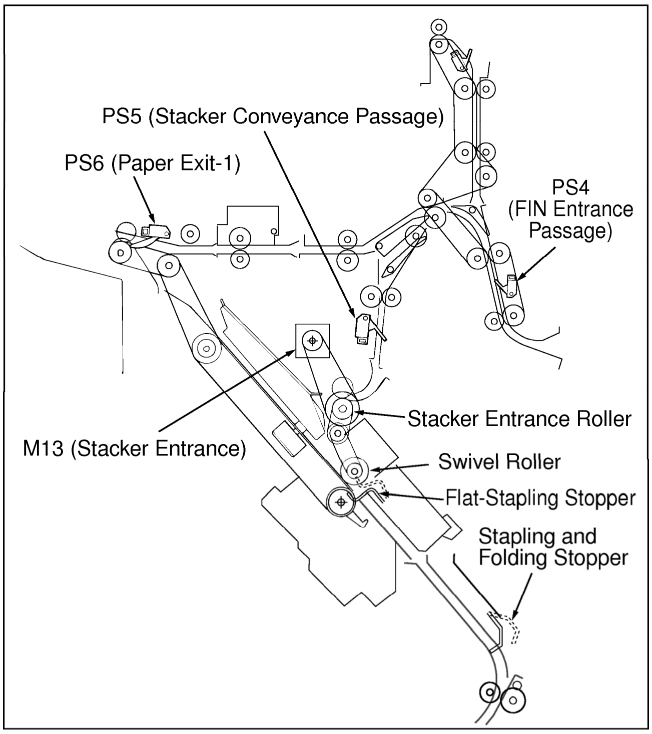
[6] M13 (Stacker Entrance) Control


RB
M13DRVA 21-A1
M13DRVA 21-A2
M13DRVB 21-A3
M13DRVB 21-A4
24V 21-A5
24V 21-A6
24V 25-A11
M13DRVA 25-A7
M13DRVA 25-A8
M13DRVB 25-A9
M13DRVB 25-A10
24V 25-A12
M13
MS1
MAIN BODY
24V 28-6
5V 2-9
SGND 2-7
PGND 28-3
PGND 28-1
TXD 114-1
NC
DTR 114-2
NC
CTS 114-5
NC
RXD 114-3
NC
DSR 114-7
NC
RTS 114-6
NC
FNS CB
4-A1 M13DRVA
4-A2 M13DRVA
4-A3 M13DRVB
4-A4 M13DRVB
4-A5 24V
4-A6 24V
6-1 24V-IN
6-3 5V
6-4 SGND
6-5 PGND
6-6 PGND
7-1 RXD
7-2 SGND
7-3 CTS
7-4 SGND
7-5 DTR
7-6 SGND
7-7 TXD
7-8 SGND
7-9 RTS
7-10 SGND
7-11 DSR
7-12 SGND
5V 1-A11
PS4IN 1-A29
GND 1-A20
PS4
5V 1-A11
PS5IN 1-A28
GND 1-A19
PS5

M13 (stacker entrance) drives the stacker entrance roller and the swivel roller, thereby carrying out the following functions: conveyance of paper to the stacker; paper alignment; and adjustment of staple waiting time. M13 is controlled by the FNS CB (FNS control board) via the RB (relay board).

1. Operation

Conveyance to the stacker varies according to paper size: one method is used for A4 and B5, another is used for all other sizes.


PS5 (Stacker Conveyance Passage)
PS6 (Paper Exit-1)
PS4
(FIN Entrance
Passage)
Stacker Entrance Roller
M13 (Stacker Entrance)
Swivel Roller
Flat-Stapling Stopper
Stapling and
Folding Stopper

a. Conveyance to the stacker (sizes other than A4 or B5)

(1) M13 ON timing

M13 (stacker entrance) is set ON by the START button ON signal, and begins with rapid rotation. M13 then switches to slow rotation a preset time period after PS4 (FIN entrance passage) detects the trailing edge of the first paper. M13 then returns to rapid rotation a preset period after PS5 (stacker conveyance passage) detects the trailing edge of the paper. This action is repeated as necessary to transport all papers to be stacked into the stacker.

(2) M13 OFF timing

M13 goes OFF a preset time period after PS5 (stacker conveyance passage) detects the trailing edge of the final paper set.

b. Conveyance to the stacker (A4 and B5 sizes)

(1) First set

Paper for the first set to be stapled is conveyed in the same way as other paper sizes.

(2) First paper of second and subsequent sets

M13 goes OFF a preset time period after PS4 (FIN entrance passage) detects the trailing edge of the first paper for the second or subsequent set, and the paper moves into the by-pass. This prevents paper from moving into the stacker while stapling of the previous set is still in progress.

(3) Second and subsequent papers of second and subsequent sets

M13 resumes slow rotation a preset time period after PS4 detects the trailing edge of the second paper of the set. This causes the first and second papers to move together (one atop the other) into the stacker. M13 switches to rapid rotation a preset time period after PS5 (stacker conveyance passage) detects the trailing edge of the first and second papers, so that it is ready to handle the third paper of the set when it arrives from the main body. Third and subsequent papers for the set are then conveyed in the same way as the papers in the first set.

c. Paper alignment (trailing-edge alignment)

For operation in staple mode:
The swivel roller adjusts the position of each paper (one paper at a time) within the stacker.
For operation in booklet mode (FS-108BM only): The stapling & folding stopper is moved and set into appropriate position. The swivel roller adjusts the position of each paper (one paper at a time).

2. Signals

a. Input signals

(1) TXD (Main-Body CB → FNS CB)
Serial data line; transmits operating status of the main body's CB to the FNS CB.

(2) DTR (Main-Body CB → FNS CB)
Request to send signal from the main body to the FNS.

(3) RTS (Main-Body CB → FNS CB)
Transmission acknowledgment signal from the main body to the FNS.

(4) PS4 IN (PS4 → FNS CB)
Comes ON ([L]) when paper passage is detected at the FNS entrance.

(5) PS5 IN (PS5 → FNS CB)
Comes ON ([L]) when paper passage is detected at the stacker entrance.

(6) PS6 IN (PS6 → FNS CB)
Comes ON ([L]) when paper is detected at the main-tray paper paper exit.

b. Output signals

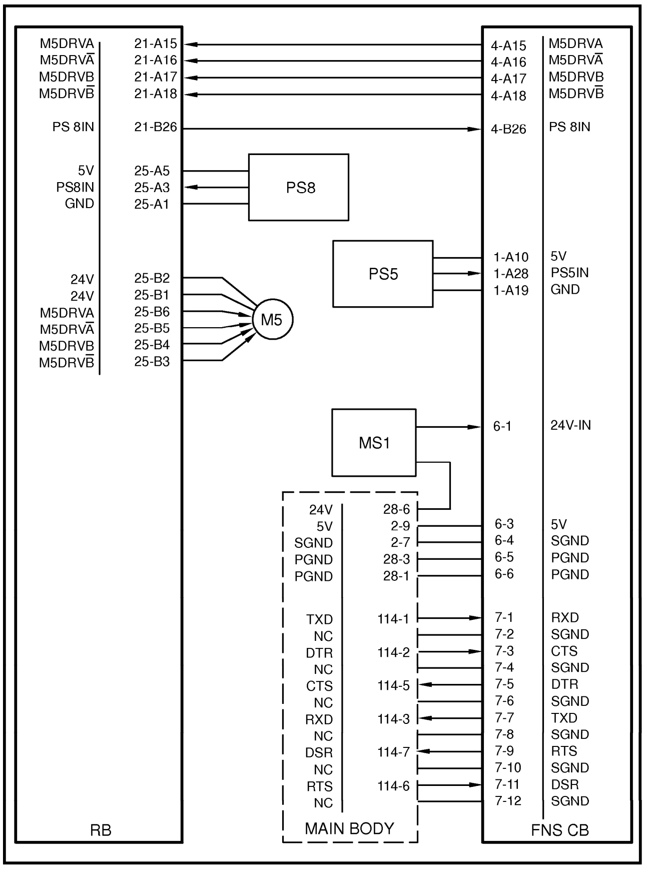
(1) TXD (FNS CB → Main-Body CB)
Serial data line; transmits FNS operating status to the main body's CB.

(2) RTS (FNS CB → Main-Body CB)
Request to send signal from the FNS to the main body.

(3) DTR (FNS CB → Main-Body CB)
Transmission acknowledgment signal from the FNS to the main body.

(4) M13 DRV A,$\overline{A}$ / M13 DRV B,$\overline{B}$ (FNS CB → RB → M13)
M13 (stacker entrance) drive control signals.

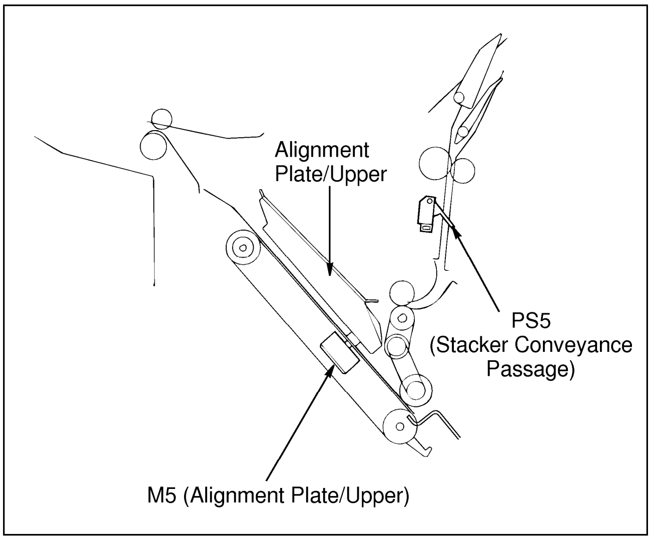
[7] M5 (Alignment Plate/Upper) Control


M5DRVA 21-A15
M5DRV$\overline{A}$ 21-A16
M5DRVB 21-A17
M5DRV$\overline{B}$ 21-A18
PS 8IN 21-B26
5V 25-A5
PS8IN 25-A3
GND 25-A1
PS8
24V 25-B2
24V 25-B1
M5DRVA 25-B6
M5DRV$\overline{A}$ 25-B5
M5DRVB 25-B4
M5DRV$\overline{B}$ 25-B3
M5
PS5
MS1
RB
4-A15 M5DRVA
4-A16 M5DRV$\overline{A}$
4-A17 M5DRVB
4-A18 M5DRV$\overline{B}$
4-B26 PS 8IN
1-A10 5V
1-A28 PS5IN
1-A19 GND
6-1 24V-IN
24V 28-6
5V 2-9
SGND 2-7
PGND 28-3
PGND 28-1
6-3 5V
6-4 SGND
6-5 PGND
6-6 PGND
TXD 114-1
NC
DTR 114-2
NC
CTS 114-5
NC
RXD 114-3
NC
DSR 114-7
NC
RTS 114-6
NC
7-1 RXD
7-2 SGND
7-3 CTS
7-4 SGND
7-5 DTR
7-6 SGND
7-7 TXD
7-8 SGND
7-9 RTS
7-10 SGND
7-11 DSR
7-12 SGND
MAIN BODY
FNS CB

M5 (alignment plate/upper) aligns the paper widthwise in the stacker by opening and closing the alignment plates/ upper. M5 is controlled by the FNS CB (FNS control board) via the RB (relay board).

1. Operation

At start-up, the alignment plates/upper are stationary at the ON position of PS8 (alignment-plate/upper HP). A specified time period after PS5 (stacker conveyance passage) detects the paper trailing edge, M5 begins rotation so as to close the plates. After another specified interval it opens the plates. This cycle repeats for each paper.


Alignment Plate/Upper
PS5 (Stacker Conveyance Passage)
M5 (Alignment Plate/Upper)

2. Signals

a. Input signals

(1) TXD (Main-Body CB → FNS CB)
Serial data line; transmits operating status of the main body's CB to the FNS CB.

(2) DTR (Main-Body CB → FNS CB)
Request to send signal from the main body to the FNS.

(3) RTS (Main-Body CB → FNS CB)
Transmission acknowledgment signal from the main body to the FNS.

(4) PS5 IN (PS5 → FNS CB)
Comes ON ([L]) when paper passage is detected at the stacker entrance.

(5) PS8 IN (PS8 → RB → FNS CB)
Detects the position of the upper alignment plates. [L] when the plates are at home position.

b. Output signals

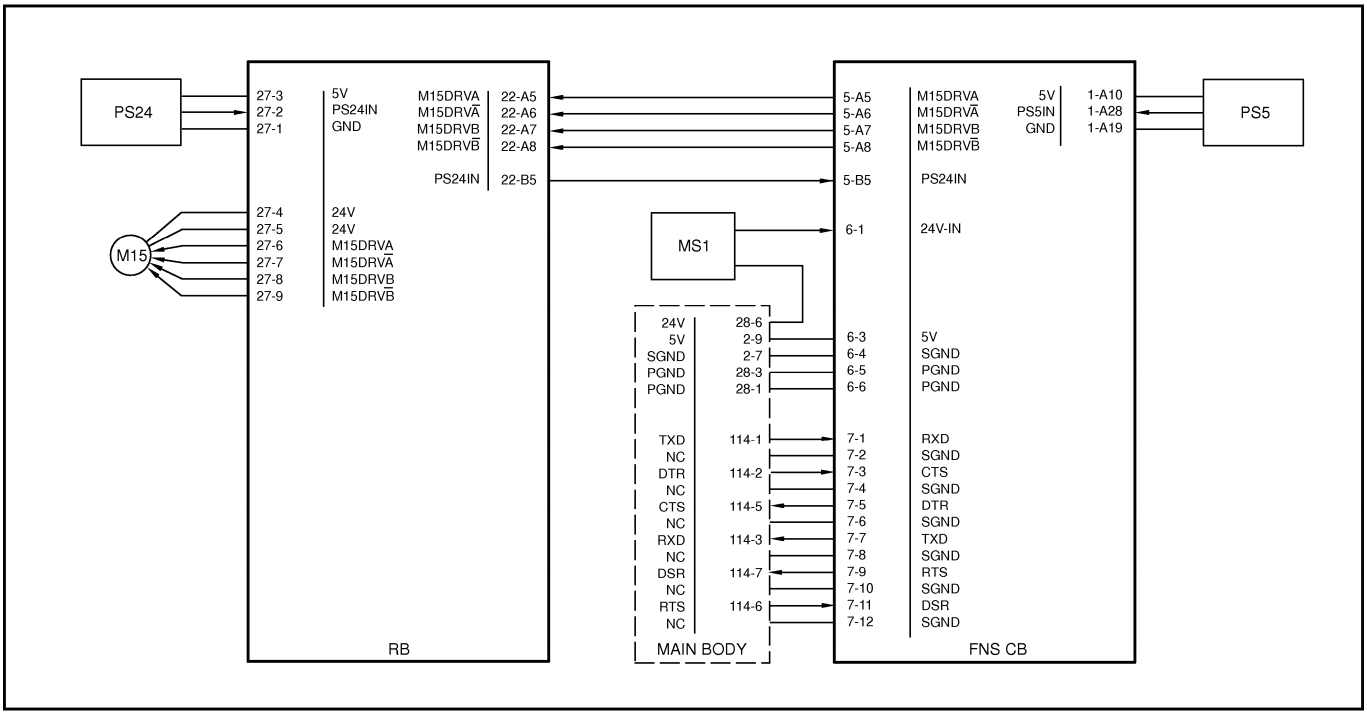
(1) TXD (FNS CB → Main-Body CB)
Serial data line; transmits FNS operating status to the main body's CB.

(2) RTS (FNS CB → Main-Body CB)
Request to send signal from the FNS to the main body.

(3) DTR (FNS CB → Main-Body CB)
Transmission acknowledgment signal from the FNS to the main body.

(4) M5 DRV A ,$\bar{A}$, B,$\bar{B}$ (FNS CB → RB → M5)
M5 (alignment plate/upper) drive control signals.

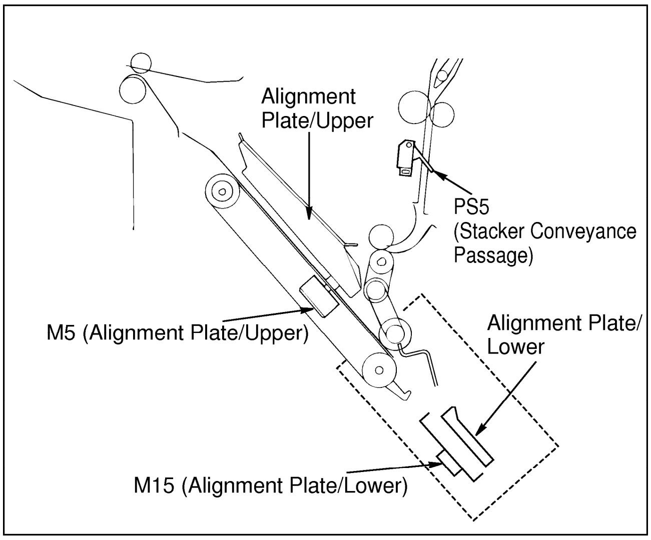
[8] M15 (Alignment Plate/Lower) Control (FS-108BM only)


PS24
27-3
27-2
27-1
5V
PS24IN
GND
M15DRVA
M15DRVA
M15DRVB
M15DRVB
22-A5
22-A6
22-A7
22-A8
PS24IN
22-B5
M15
27-4
27-5
27-6
27-7
27-8
27-9
24V
24V
M15DRVA
M15DRVA
M15DRVB
M15DRVB
RB
MS1
24V
5V
SGND
PGND
PGND
28-6
2-9
2-7
28-3
28-1
TXD
NC
DTR
NC
CTS
NC
RXD
NC
DSR
NC
RTS
NC
114-1
114-2
114-5
114-3
114-7
114-6
MAIN BODY
5-A5
5-A6
5-A7
5-A8
M15DRVA
M15DRVA
M15DRVB
M15DRVB
5-B5
PS24IN
6-1
24V-IN
6-3
6-4
6-5
6-6
5V
SGND
PGND
PGND
7-1
7-2
7-3
7-4
7-5
7-6
7-7
7-8
7-9
7-10
7-11
7-12
RXD
SGND
CTS
SGND
DTR
SGND
TXD
SGND
RTS
SGND
DSR
SGND
FNS CB
5V
PS5IN
GND
1-A10
1-A28
1-A19
PS5

M15 (alignment plate/lower) aligns the stapling-and-folding position by opening and closing the alignment plates/lower. M15 is controlled by the FNS CB (finisher control board) via the RB (relay board).

1. Operation

At start-up, the alignment plates/lower are stationary at the ON position of PS24 (alignment-plate/lower HP). A specified time period after PS5 (stacker conveyance passage) detects the paper trailing edge, M15 begins rotation so as to close the plates. After another specified interval it opens the plates. This cycle repeats for each paper.


Alignment Plate/Upper
PS5 (Stacker Conveyance Passage)
M5 (Alignment Plate/Upper)
Alignment Plate/Lower
M15 (Alignment Plate/Lower)

2. Signals

a. Input signals

(1) TXD (Main-Body CB → FNS CB)
Serial data line; transmits operating status of the main body's CB to the FNS CB.

(2) DTR (Main-Body CB → FNS CB)
Request to send signal from the main body to the FNS.

(3) RTS (Main-Body CB → FNS CB)
Transmission acknowledgment signal from the main body to the FNS.

(4) PS5 IN (PS5 → FNS CB)
Comes ON ([L]) when paper passage is detected at the stacker entrance.

(5) PS24 IN (PS24 → connector board → FNS CB)
Detects the position of the lower alignment plates. [L] when the plates are at home position.

b. Output signals

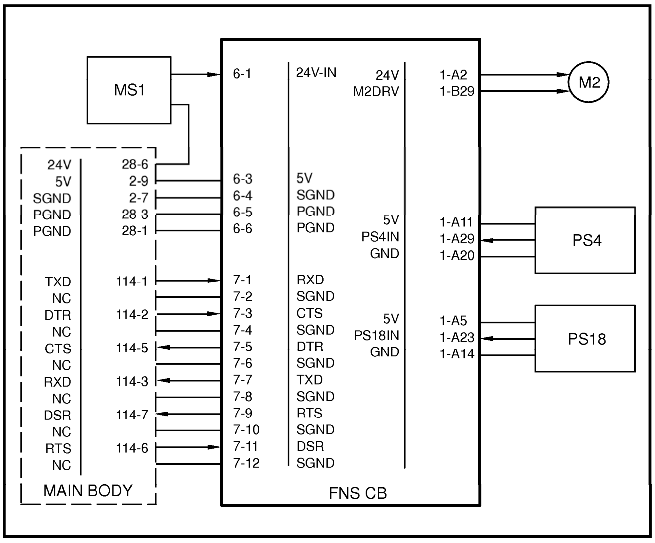
(1) TXD (FNS CB → Main-Body CB)
Serial data line; transmits FNS operating status to the main body's CB.

(2) RTS (FNS CB → Main-Body CB)
Request to send signal from the FNS to the main body.

(3) DTR (FNS CB → Main-Body CB)
Transmission acknowledgment signal from the FNS to the main body.

(4) M15 DRV A,$\overline{A}$,B,$\overline{B}$ (FNS CB → RB → M15)
M15 (alignment plate/lower) drive signals.

[9] M2 (Roller Shift) Control


MS1
M2
PS4
PS18
24V
5V
SGND
PGND
PGND
TXD
NC
DTR
NC
CTS
NC
RXD
NC
DSR
NC
RTS
NC
28-6
2-9
2-7
28-3
28-1
114-1
114-2
114-5
114-3
114-7
114-6
MAIN BODY
6-1
6-3
6-4
6-5
6-6
7-1
7-2
7-3
7-4
7-5
7-6
7-7
7-8
7-9
7-10
7-11
7-12
24V-IN
5V
SGND
PGND
PGND
RXD
SGND
CTS
SGND
DTR
SGND
TXD
SGND
RTS
SGND
DSR
SGND
24V
M2DRV
5V
PS4IN
GND
5V
PS18IN
GND
1-A2
1-B29
1-A11
1-A29
1-A20
1-A5
1-A23
1-A14
FNS CB

When running in Sort or Group mode, the FNS carries out shifting of paper. Shifting is driven by M2 (roller shift), which is controlled by the FNS CB (FNS control board).

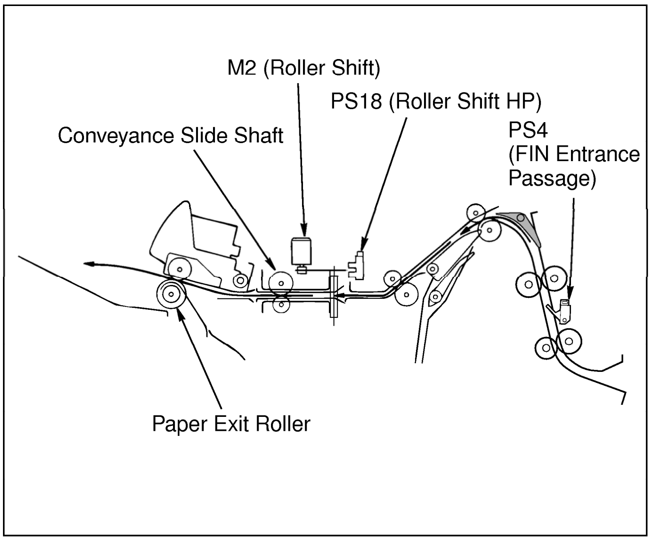
1. Operation

If operation is in Sort or Group mode, M2 (roller shift) comes ON a predetermined time period after PS4 (FIN entrance passage) detects the trailing edge of a paper that needs to be shifted.

Rotation of M2 starts shifting of the conveyance slide shaft, while rotation of M1 (FNS conveyance) causes the shaft to turn, so that shifting and conveyance occur simultaneously. PS18 (roller-shift HP) comes ON when the shaft has been fully shifted, causing M2 to go OFF.

A specified time period after PS4 goes off, M2 comes back ON and returns the conveyance slide shaft to its original position. PS18 (roller-shift HP) goes OFF when the shaft has returned all the way, causing M2 to go OFF again.

This operation is repeated as necessary to shift paper as it moves toward the exit roller.


M2 (Roller Shift)
PS18 (Roller Shift HP)
Conveyance Slide Shaft
PS4
(FIN Entrance
Passage)
Paper Exit Roller

2. Signals

a. Input signals

(1) TXD (Main-Body CB → FNS CB)
Serial data line; transmits operating status of the main body's CB to the FNS CB.

(2) DTR (Main-Body CB → FNS CB)
Request to send signal from the main body to the FNS.

(3) RTS (Main-Body CB → FNS CB)
Transmission acknowledgment signal from the main body to the FNS.

(4) PS4 IN (PS4 → FNS CB)
Comes ON ([L]) when paper passage is detected at the FNS entrance.

(5) PS18 IN (PS18 → FNS CB)
Roller-shift position detection signal.
[L]→[H]: Forward position
[H]→[L]: Back position

b. Output signals

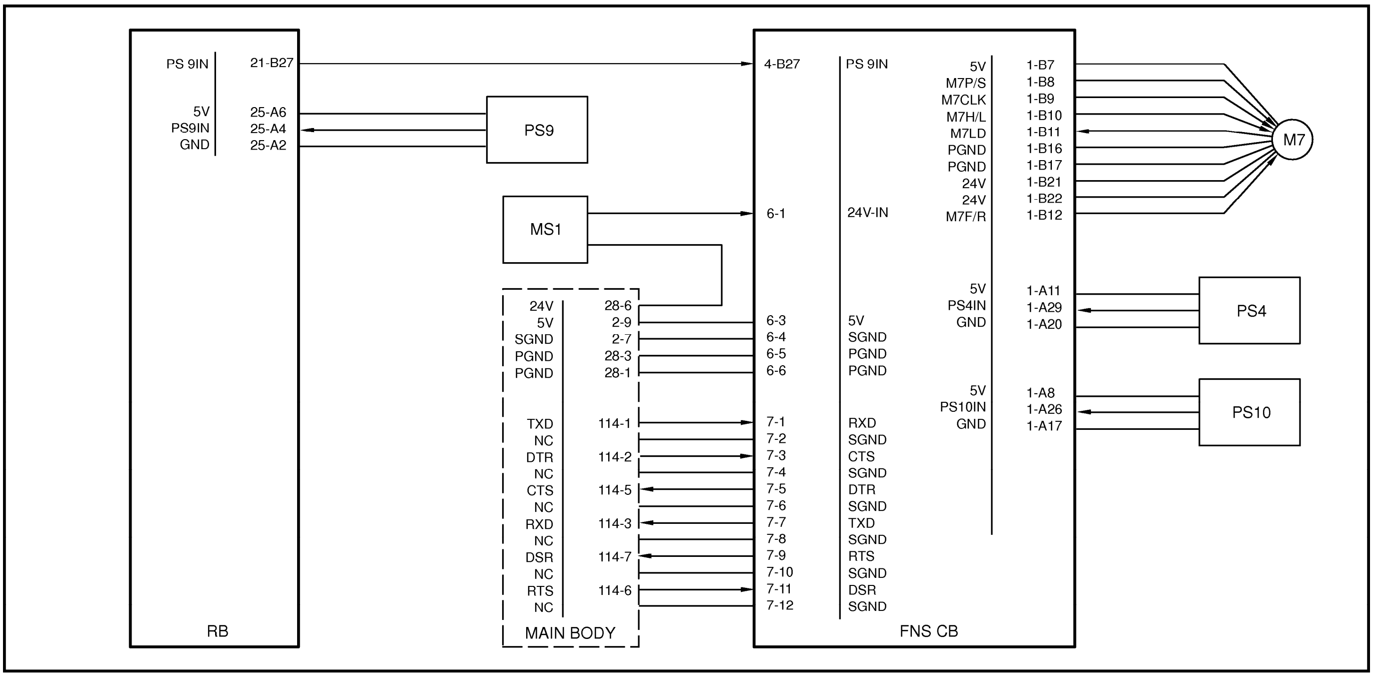
(1) TXD (FNS CB → Main-Body CB)
Serial data line; transmits FNS operating status to the main body's CB.

(2) RTS (FNS CB → Main-Body CB)
Request to send signal from the FNS to the main body.

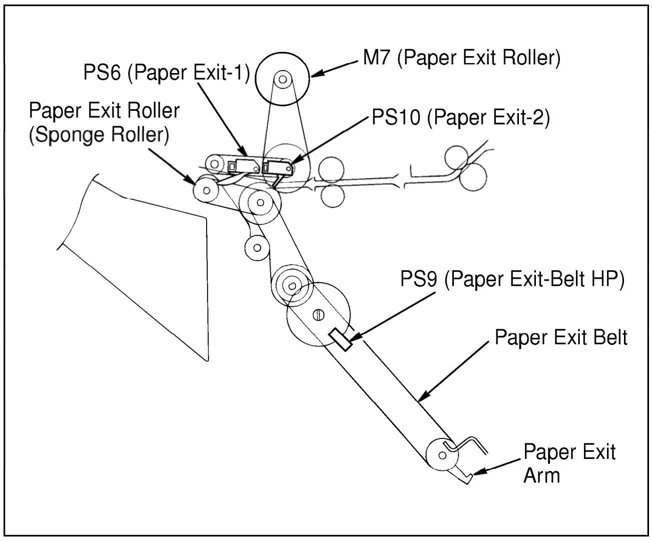
(3 DTR (FNS CB → Main-Body CB)
Transmission acknowledgment signal from the FNS to the main body.

(4) M2 DRV (FNS CB → M2)
M2 (roller-shift motor) drive control signal.
[H]: ON
[L]: OFF

[10] M7 (Paper Exit Roller) Control


RB
PS 9IN 21-B27
5V 25-A6
PS9IN 25-A4
GND 25-A2
PS9
MS1
24V 28-6
5V 2-9
SGND 2-7
PGND 28-3
PGND 28-1
TXD 114-1
NC
DTR 114-2
NC
CTS 114-5
NC
RXD 114-3
NC
DSR 114-7
NC
RTS 114-6
NC
MAIN BODY
FNS CB
4-B27 PS 9IN
6-1 24V-IN
6-3 5V
6-4 SGND
6-5 PGND
6-6 PGND
7-1 RXD
7-2 SGND
7-3 CTS
7-4 SGND
7-5 DTR
7-6 SGND
7-7 TXD
7-8 SGND
7-9 RTS
7-10 SGND
7-11 DSR
7-12 SGND
5V 1-B7
M7P/S 1-B8
M7CLK 1-B9
M7H/L 1-B10
M7LD 1-B11
PGND 1-B16
PGND 1-B17
24V 1-B21
24V 1-B22
M7F/R 1-B12
M7
5V 1-A11
PS4IN 1-A29
GND 1-A20
PS4
5V 1-A8
PS10IN 1-A26
GND 1-A17
PS10

The paper exit belt ejects paper from the stacker, while the paper exit roller ejects the paper from the FNS. M7 (paper exit roller) drives both the belt and the roller. M7 is controlled by the FNS CB (FNS control board).


M7 (Paper Exit Roller)
PS6 (Paper Exit-1)
Paper Exit Roller (Sponge Roller)
PS10 (Paper Exit-2)
PS9 (Paper Exit-Belt HP)
Paper Exit Belt
Paper Exit Arm

1. Operation

a. Sort, Group, and Non-Sort modes

M7 (paper exit roller) starts turning when PS4 (FIN entrance passage) detects the leading edge of a paper. M7 goes off when PS10 (paper exit-2) detects paper exit of the paper, unless an FNS start signal has already been received from the main body.

b. Staple mode (flat stapling)

M7 starts running when stapling is finished, and stops when PS9 (paper exit-belt HP) comes ON.

c. Booklet mode

M7 starts running in reverse when stapling is finished, and stops when PS9 (paper exit-belt HP) comes ON.

2. Signals

a. Input signals

(1) TXD (Main-Body CB → FNS CB)
Serial data line; transmits operating status of the main body's CB to the FNS CB.

(2) DTR (Main-Body CB → FNS CB)
Request to send signal from the main body to the FNS.

(3) RTS (Main-Body CB → FNS CB)
Transmission acknowledgment signal from the main body to the FNS.

(4) PS4 IN (PS4 → FNS CB)
Comes ON ([L]) when paper passage is detected at the FNS entrance.

(5) PS9 IN (PS9 → RB → FNS CB)
Comes ON ([L]) when the paper exit belt is in home position.

(6) PS10 IN (PS10 → FNS CB)
Comes ON ([L]) when paper is detected at the FNS paper exit.

(7) M7 LD (M7 → FNS CB)
M7 rotational status detection signal. This signal becomes [L] when M7 reaches the set speed.

b. Output signals

(1) TXD (FNS CB → Main-Body CB)
Serial data line; transmits FNS operating status to the main body's CB.

(2) RTS (FNS CB → Main-Body CB)
Request to send signal from the FNS to the main body.

(3) DTR (FNS CB → Main-Body CB)
Transmission acknowledgment signal from the FNS to the main body.

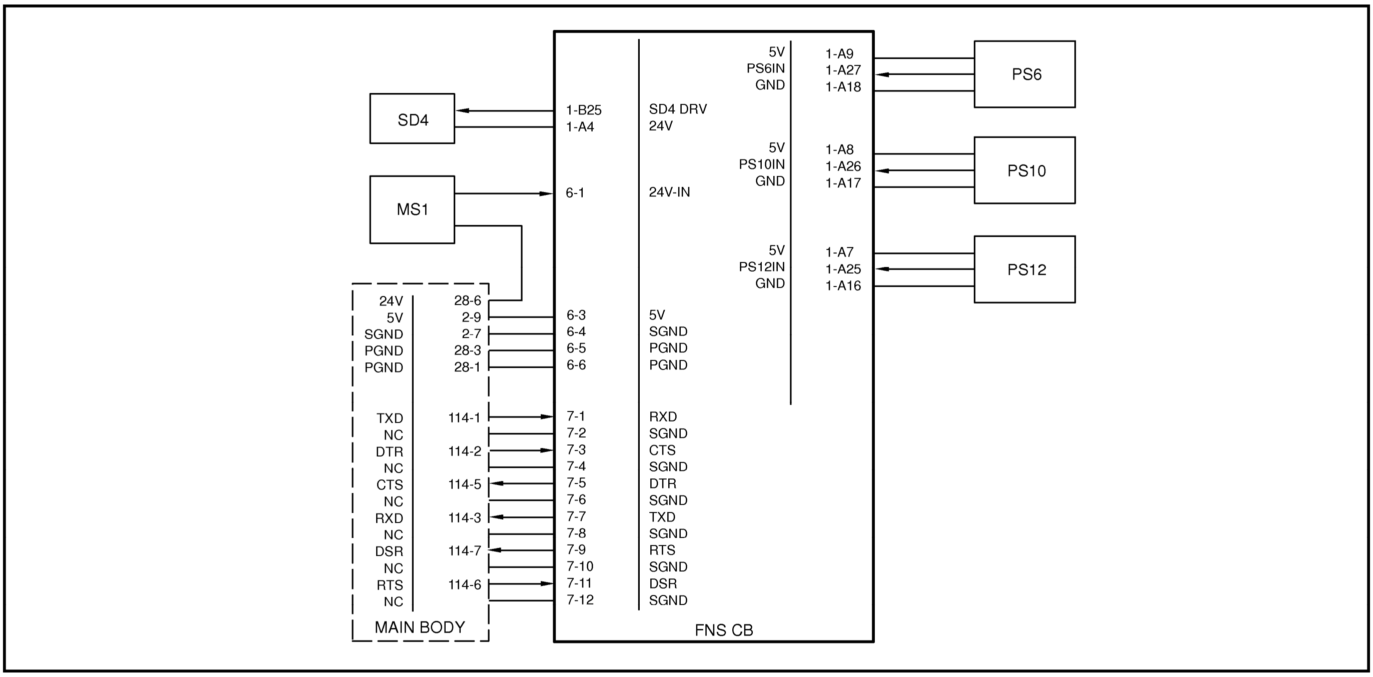
(4) M7 P/S (FNS CB→ M7)
M7 (paper exit roller) drive control signal.
[H]: OFF
[L]: ON

(5) M7 CLK (FNS CB → M7)
M7 (paper exit roller) speed-adjustment clock signal.

(6) M7 H/L (FNS CB → M7)
Reference clock signal for controlling the speed of M7 (paper exit roller).
[H]: Slow
[L]: Fast

(7) M7 F/R (FNS CB → M7)
M7 (paper exit roller) rotation direction control signal.
[H]: Counterclockwise
[L]: Clockwise

[11] SD4 (Paper Exit Opening) Control


SD4
MS1
PS6
PS10
PS12
1-B25 SD4 DRV
1-A4 24V
6-1 24V-IN
5V 1-A9
PS6IN 1-A27
GND 1-A18
5V 1-A8
PS10IN 1-A26
GND 1-A17
5V 1-A7
PS12IN 1-A25
GND 1-A16
24V 28-6
5V 2-9 6-3 5V
SGND 2-7 6-4 SGND
PGND 28-3 6-5 PGND
PGND 28-1 6-6 PGND
TXD 114-1 7-1 RXD
NC 7-2 SGND
DTR 114-2 7-3 CTS
NC 7-4 SGND
CTS 114-5 7-5 DTR
NC 7-6 SGND
RXD 114-3 7-7 TXD
NC 7-8 SGND
DSR 114-7 7-9 RTS
NC 7-10 SGND
RTS 114-6 7-11 DSR
NC 7-12 SGND
MAIN BODY
FNS CB

SD4 (paper exit opening) controls engagement by the nip paper exit roller. SD4 is controlled by the FNS CB (FNS control board).

1. Operation

When ejection is not in progress, a gap is maintained between the nip paper exit roller and the paper exit roller so as to prevent paper jams at the paper exit. At time of ejection, however, SD4 comes ON, inclining the nip paper exit roller against the paper exit roller so that the gap is closed.

a. SD4 ON timing

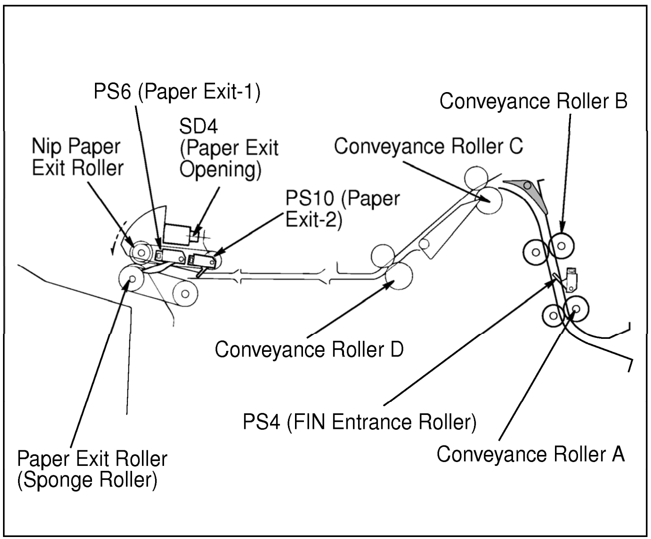
(1) Sort, Group, and Non-Sort modes
SD4 comes ON a preset time period after PS10 (paper exit-2) detects the leading edge of the sheet.

(2) Staple mode
SD4 comes ON a preset time period following completion of stapling.

b. SD4 OFF timing

(1) Sort, Group, and Non-Sort modes
SD4 goes OFF a preset time period after PS10 (paper exit-2) detects the trailing edge of the paper.

(2) Staple mode
SD4 goes OFF a preset time period after PS6 (paper exit-1) detects the trailing edge of the paper set.


PS6 (Paper Exit-1)
Conveyance Roller B
SD4 (Paper Exit Opening)
Nip Paper Exit Roller
Conveyance Roller C
PS10 (Paper Exit-2)
Conveyance Roller D
PS4 (FIN Entrance Roller)
Paper Exit Roller (Sponge Roller)
Conveyance Roller A

2. Signals

a. Input signals

(1) TXD (Main-Body CB → FNS CB)
Serial data line; transmits operating status of the main body's CB to the FNS CB.

(2) DTR (Main-Body CB → FNS CB)
Request to send signal from the main body to the FNS.

(3) RTS (Main-Body CB → FNS CB)
Transmission acknowledgment signal from the main body to the FNS.

(4) PS6 IN (PS6 → FNS CB)
Comes ON ([L]) when paper passage is detected at the FNS paper exit.

(5) PS10 IN (PS10 → FNS CB)
Comes ON ([L]) when paper passage is detected at the FNS paper exit.

(6) PS12 IN (PS12 → FNS CB)
Detects open/closed state of the paper exit opening.
[H]→[L]: Closed
[L]→[H]: Open

b. Output signals

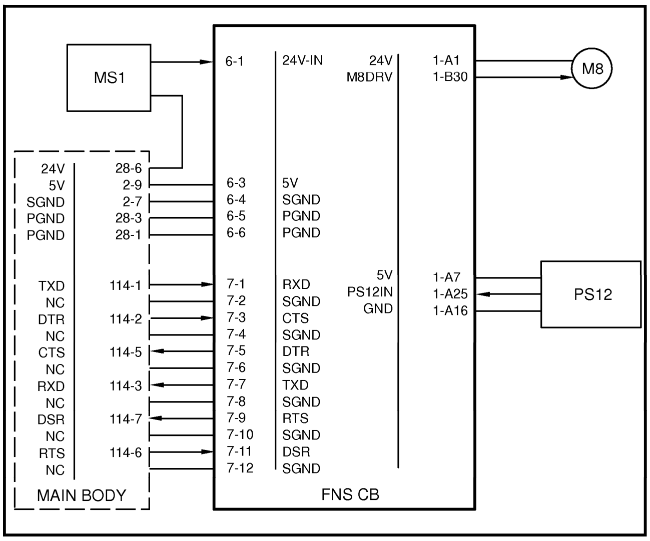
(1) RXD (FNS CB → Main-Body CB)
Serial data line; transmits FNS operating status to the main body's CB.

(2) RTS (FNS CB → Main-Body CB)
Request to send signal from the FNS to the main body.

(3) DTR (FNS CB → Main-Body CB)
Transmission acknowledgment signal from the FNS to the main body.

(4) SD4 DRV (FNS CB → SD4)
SD4 (paper exit opening) drive control signal.
[H]: OFF
[L]: ON

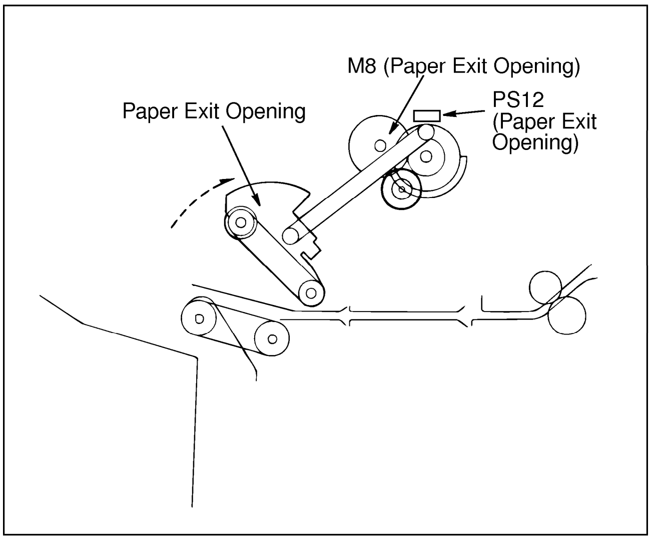
[12] M8 (Paper Exit Opening) Control


MS1
6-1
24V-IN
24V
M8DRV
1-A1
1-B30
M8
24V
5V
SGND
PGND
PGND
28-6
2-9
2-7
28-3
28-1
6-3
6-4
6-5
6-6
5V
SGND
PGND
PGND
TXD
NC
DTR
NC
CTS
NC
RXD
NC
DSR
NC
RTS
NC
114-1
114-2
114-5
114-3
114-7
114-6
7-1
7-2
7-3
7-4
7-5
7-6
7-7
7-8
7-9
7-10
7-11
7-12
RXD
SGND
CTS
SGND
DTR
SGND
TXD
SGND
RTS
SGND
DSR
SGND
5V
PS12IN
GND
1-A7
1-A25
1-A16
PS12
MAIN BODY
FNS CB

M8 (paper exit opening) controls opening and closing of the paper exit by means of a linkage mechanism. M8 is controlled by the FNS CB (FNS control board).

1. Operation

If large paper is being stapled, M8 comes on when the START button ON signal is received, causing the paper exit to open. Upon completion of stapling, the stapling-completed signal from the FNS CB causes the paper exit to close, and the stapled set is exited. The status of the paper exit opening is detected by PS12 (paper exit opening).


M8 (Paper Exit Opening)
Paper Exit Opening
PS12
(Paper Exit
Opening)

	When Copy Starts	When paper conveying to Stacker	When paper exit to the tray
Staple (not A4 or B5)	Open	Open	Closed
Staple (A4, B5)	Closed	Closed	Closed
Of-fset	Closed	–	Closed
Booklet	Open	Open	Open

2. Signals

a. Input signals

(1) TXD (Main-Body CB → FNS CB)
Serial data line; transmits operating status of the main body's CB to the FNS CB.

(2) DTR (Main-Body CB → FNS CB)
Request to send signal from the main body to the FNS.

(3) RTS (Main-Body CB → FNS CB)
Transmission acknowledgment signal from the main body to the FNS.

(4) PS12 IN (PS12 → FNS CB)
Detects open/closed state of the paper exit opening.
[H]→[L]: Closed
[L]→[H]: Open

b. Output signals

(1) TXD (FNS CB → Main-Body CB)
Serial data line; transmits FNS operating status to the main body's CB.

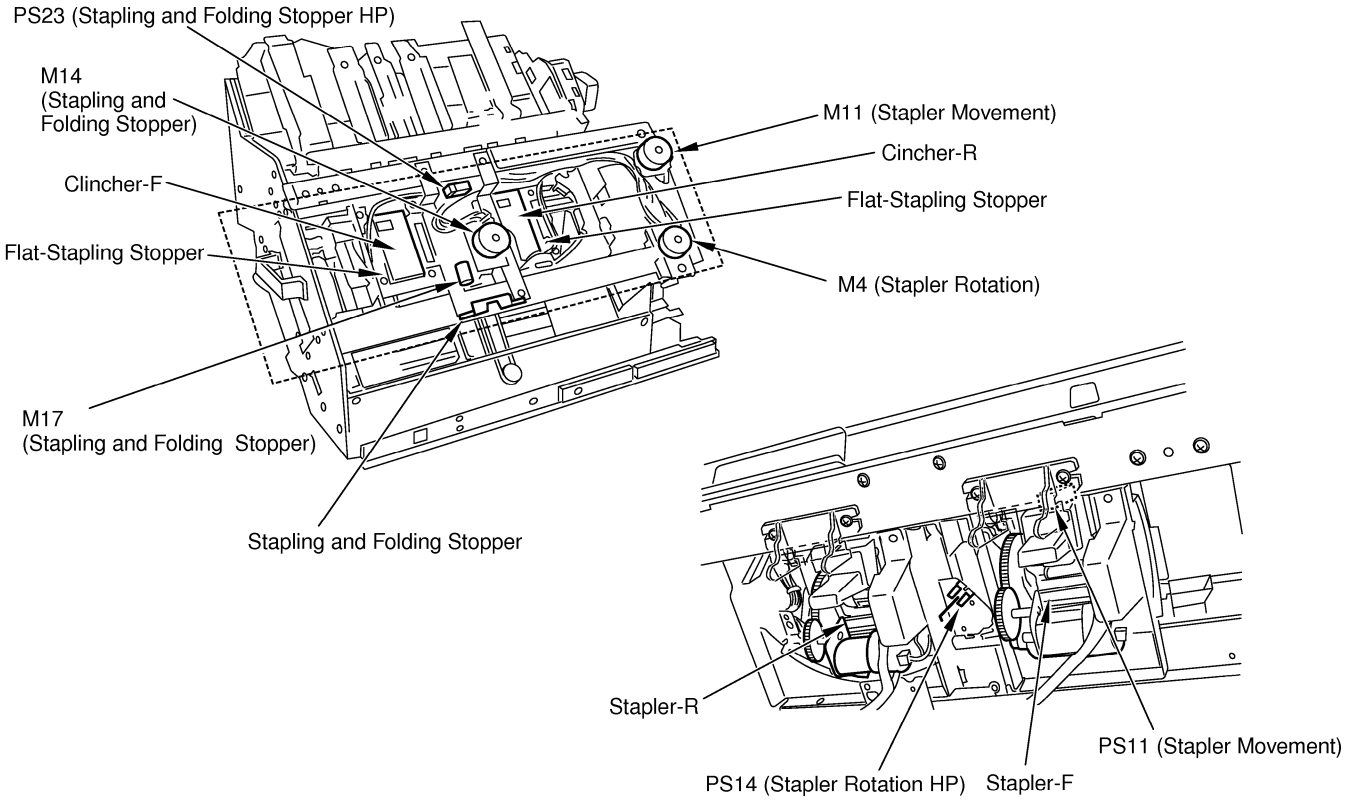
(2) RTS (FNS CB → Main-Body CB)
Request to send signal from the FNS to the main body.

(3) DTR (FNS CB → Main-Body CB)
Transmission acknowledgment signal from the FNS to the main body.

(4) M8 DRV (FNS CB → M8)
M8 (paper exit opening) drive control signal.
[H]: ON
[L]: OFF

Stapler UNIT

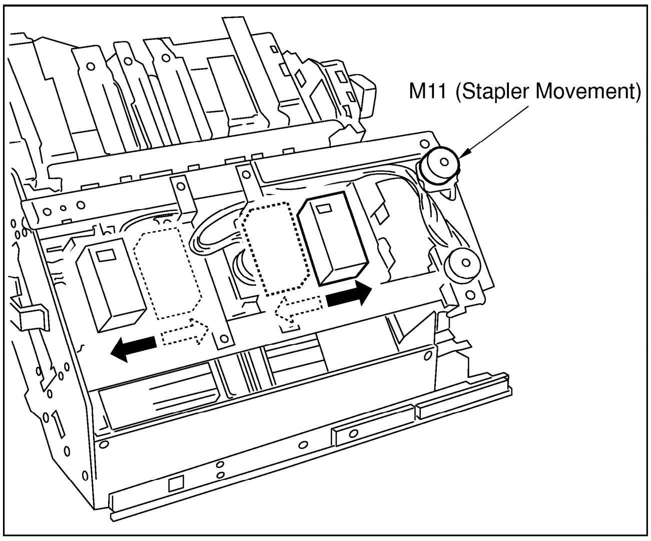
[1] Composition


PS23 (Stapling and Folding Stopper HP)
M14
(Stapling and
Folding Stopper)
Clincher-F
Flat-Stapling Stopper
M17
(Stapling and Folding Stopper)
Stapling and Folding Stopper
M11 (Stapler Movement)
Cincher-R
Flat-Stapling Stopper
M4 (Stapler Rotation)
Stapler-R
PS14 (Stapler Rotation HP)
Stapler-F
PS11 (Stapler Movement)

[2] Mechanism

1. Single staple (front)

Stapler-F and clincher-F move to the staple position, driven by M11 (stapler movement). After moving into position, thy staple the stacked paper.


M11 (Stapler Movement)

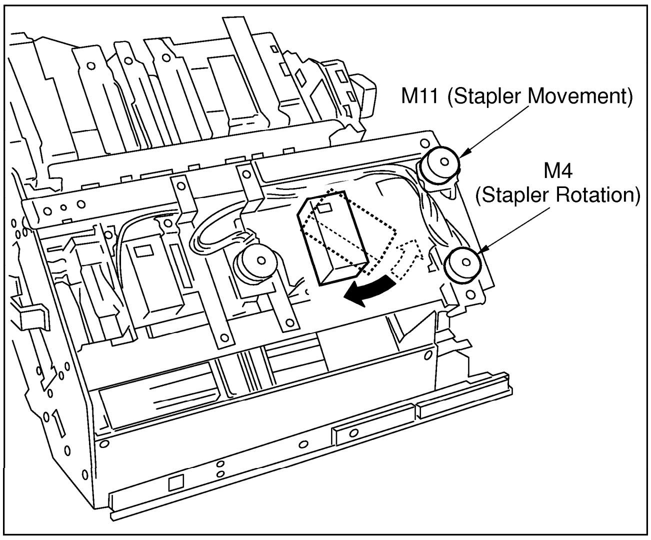
2. Single staple (rear)

Stapler-R and clincher-R slide into the staple position. M11 (stapler movement) and M4 (stapler rotation) control the motion.

Stapler-R and clincher-R rotate and move to the staple position.

Rotation is driven by M4 (stapler rotation).

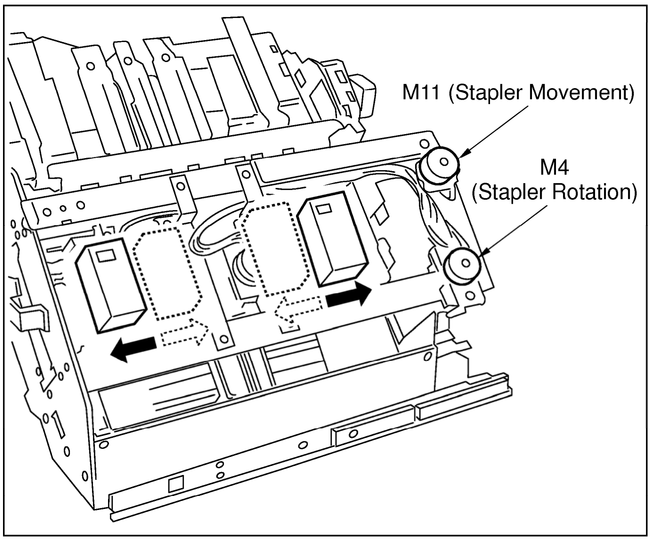
Stapler-R and clincher-R staple the stacked paper.


M11 (Stapler Movement)
M4
(Stapler Rotation)

3. Two staples (flat)

Stapler-F, stapler-R, clincher-F, and clincher-R move into position and staple the stacked paper in two locations.

Stapler-F and clincher-F are driven by M11 (stapler movement). Stapler-R and clincher-R are driven by M11 and M4 (stapler rotation).

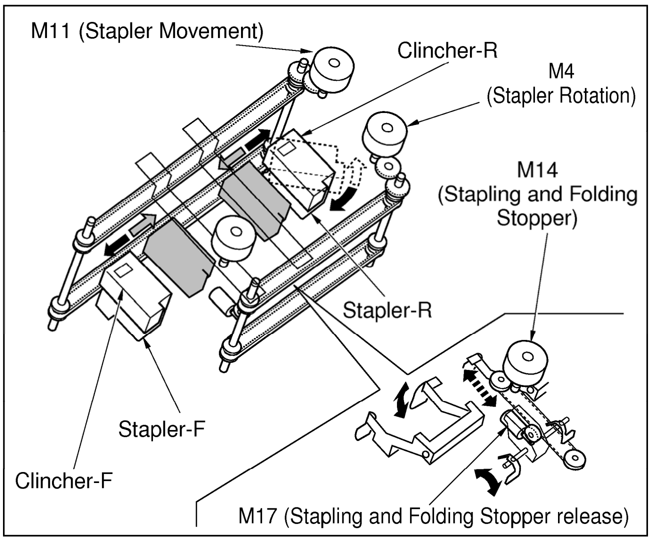

M11 (Stapler Movement)
M4
(Stapler Rotation)

4. Two staples (staple & fold) (FS-108BM only)

Stapler F, stapler R, clincher F, and clincher R move into position.

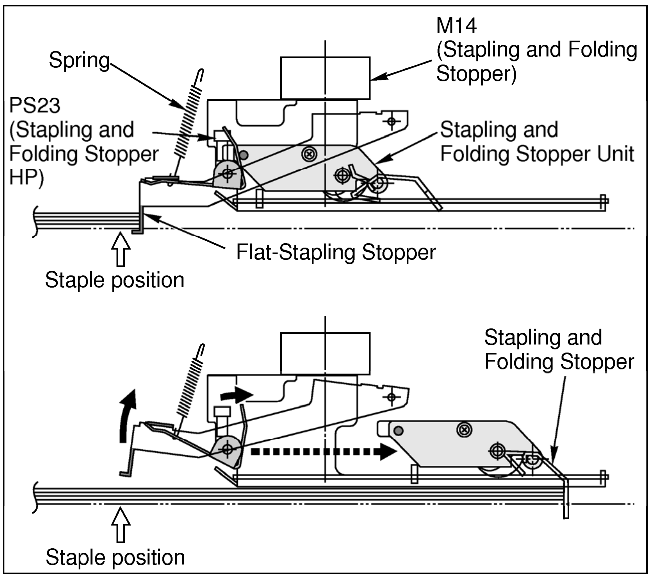
Paper is transported to the stapling-and-folding stopper, and then aligned by the action of the upper and lower alignment plates. The paper is then stapled in two locations.

Stapler-F and clincher-F are driven by M11 (stapler movement). Stapler-R and clincher-R are driven by M11 and M4 (stapler rotation).

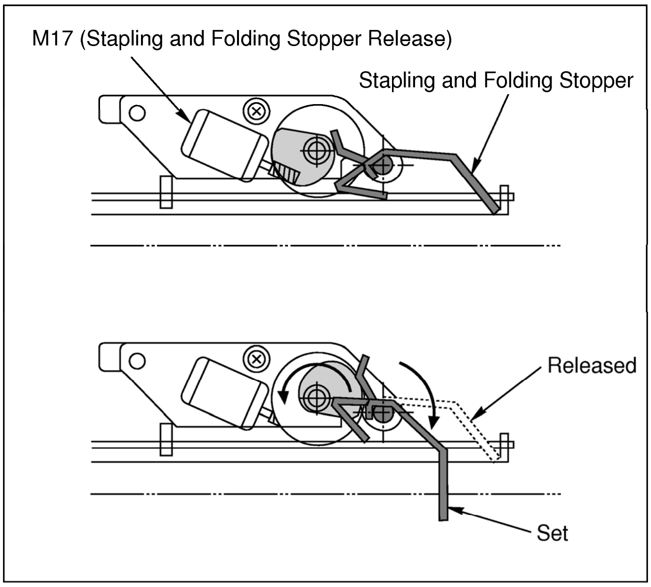

M11 (Stapler Movement)
Clincher-R
M4
(Stapler Rotation)
M14
(Stapling and Folding Stopper)
Stapler-R
Stapler-F
Clincher-F
M17 (Stapling and Folding Stopper release)

5. Operation of the flat-stapling and stapling-and-folding stopper (FS-108BM only)

The flat-stapling stopper is held set while the stapling-and-folding stopper unit is at home position. The flat-stapling stopper is released by a spring when the stapling-and-folding stopper unit is moved out of home position by the action of M14 (stapling-and-folding stopper).


Spring
M14
(Stapling and Folding
Stopper)
PS23
(Stapling and
Folding Stopper
HP)
Stapling and
Folding Stopper Unit
Flat-Stapling Stopper
Staple position
Stapling and
Folding Stopper
Staple position

When the stapling-and-folding stopper unit has moved into the predetermined position, it is set in place by M17 (stapling-and-folding stopper release).

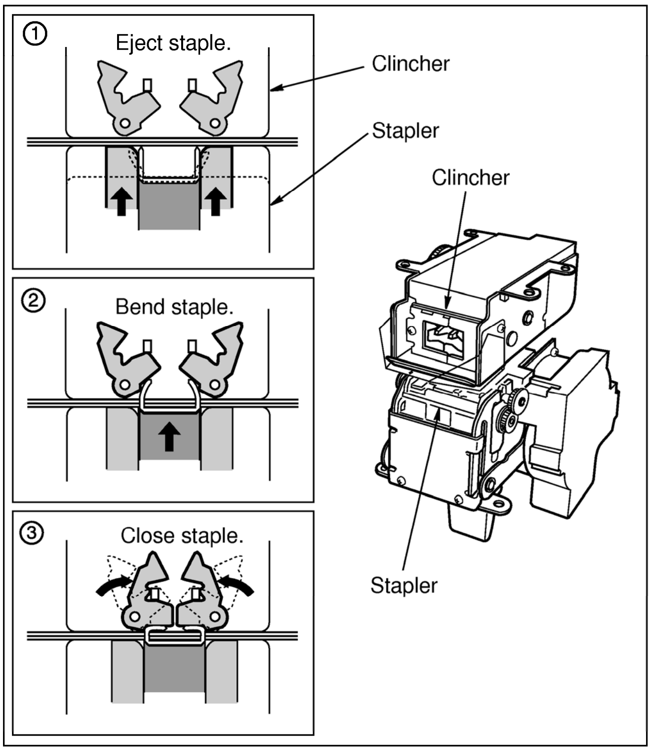

M17 (Stapling and Folding Stopper Release)
Stapling and Folding Stopper
Released
Set

For stapling-and-folding operation: Paper is transported up to the stapling-and-folding stopper for stapling. When stapling is completed, M17 releases the stopper and the paper set moves to the folding unit. Setting and releasing of the stopper is repeated for each paper set.

Return of the staple paper-end stopper to home position resets the flat-stapling stopper.

6. Stapling operation

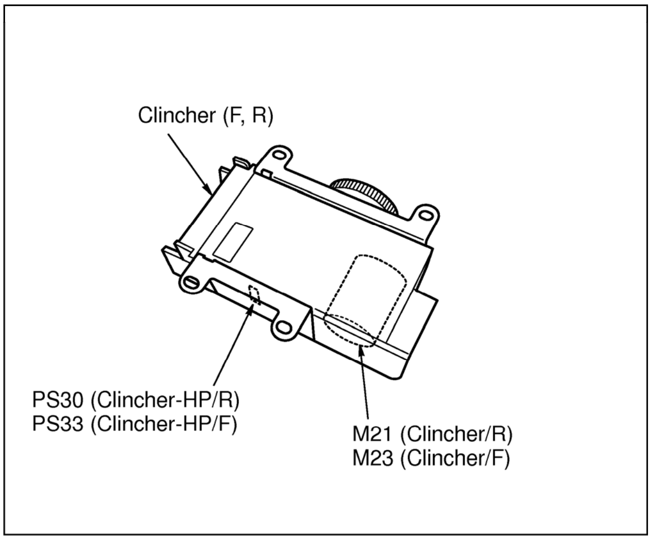
Each stapler houses a stapler motor, and each clincher houses a clincher motor. Motors M24 (stapler/F) and M22 (stapler/R) eject the staples, while motors M23 (clincher/F) and M21 (clincher/R) bend the staples.

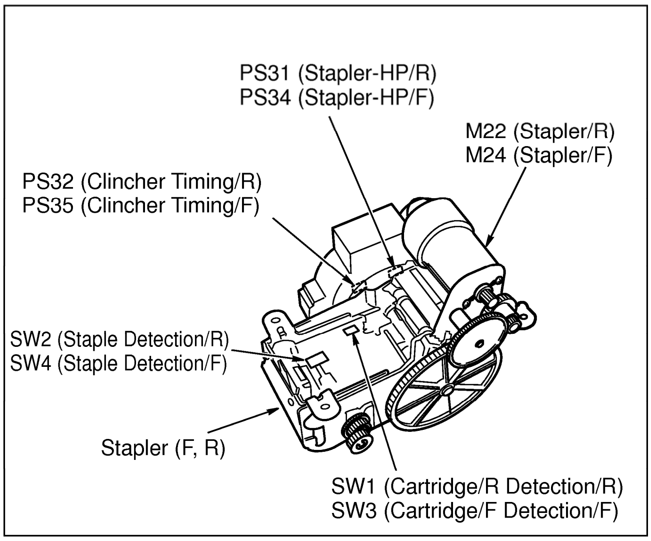

①
Eject staple.
②
Bend staple.
③
Close staple.
Clincher
Stapler
Clincher
Stapler

The timing for staple clinching is controlled by stapler-internal sensors PS32 (clincher-timing/R) and PS35 (clincher-timing/F). Switching ON of PS32 and PS35 causes motors M21 and M23 (within the clinchers) to operate, initiating the clinch action.

Motor M11 (stapler movement) controls the movement (displacement) of both staplers and both clinchers, while motor M4 (stapler rotation) controls the rotation of stapler-R and clincher-R. PS11 (stapler movement HP) detects stapler movement (displacement), and PS14 (stapler rotation HP) detects stapler rotation.

SW1 (cartridge-R detection) and SW3 (cartridge-F detection) detect presence (and correct setting) or absence (or improper setting) of the respective staple cartridges. SW2 (staple detection/R) and SW4 (staple detection/F) come ON when the amount of staples in the respective cartridge runs low.


Clincher (F, R)
PS30 (Clincher-HP/R)
PS33 (Clincher-HP/F)
M21 (Clincher/R)
M23 (Clincher/F)


PS31 (Stapler-HP/R)
PS34 (Stapler-HP/F)
M22 (Stapler/R)
M24 (Stapler/F)
PS32 (Clincher Timing/R)
PS35 (Clincher Timing/F)
SW2 (Staple Detection/R)
SW4 (Staple Detection/F)
Stapler (F, R)
SW1 (Cartridge/R Detection/R)
SW3 (Cartridge/F Detection/F)

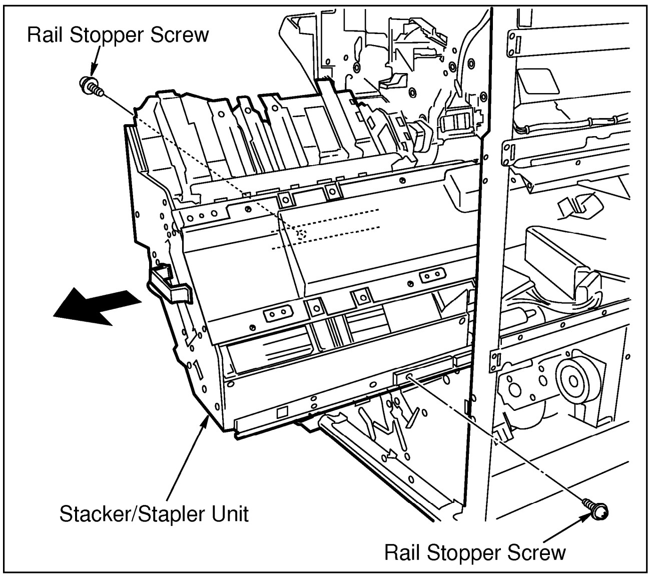
[3] Disassembly and Reassembly

⚠ **CAUTION: Be sure that the power cord has been unplugged from the outlet.**

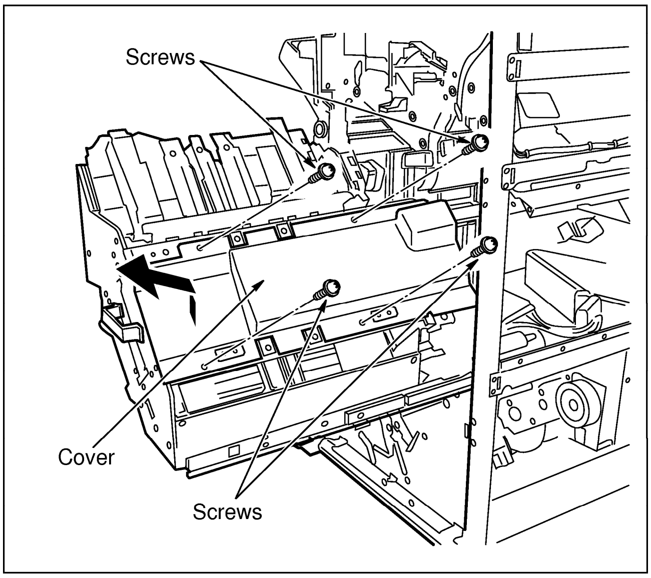
1. Exchanging the clincher

a. Procedure

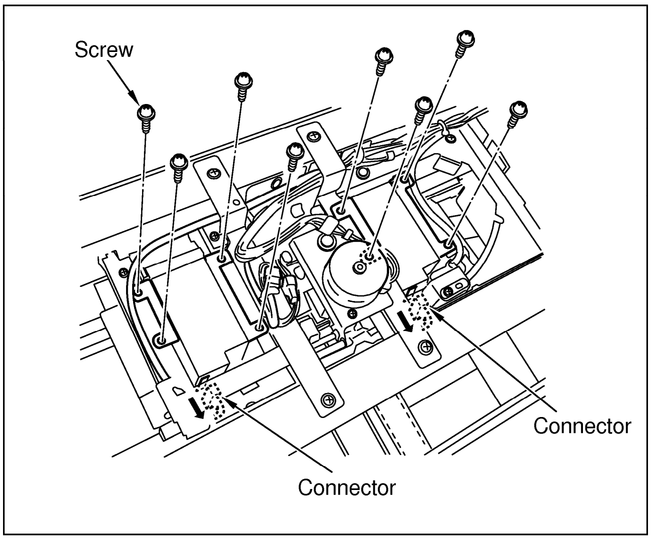
(1) Remove the front cover.
(2) Pull out the stacker/slider unit by pulling on the handle.
(3) Remove the 2 rail-stopper set screws.


Rail Stopper Screw
Stacker/Stapler Unit
Rail Stopper Screw

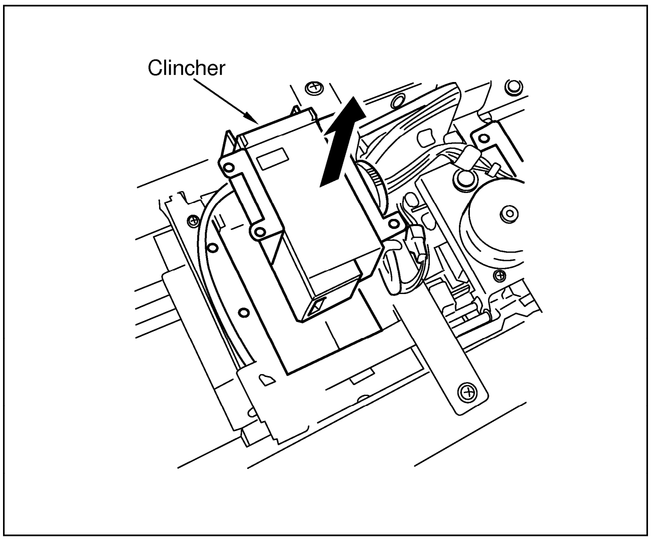
(4) Remove the 4 set screws holding the cover in place, and remove the cover.


Screws
Cover
Screws

(5) Detach the connector from the clincher you wish to replace, and remove the 4 set screws holding the clincher in place.


Screw
Connector
Connector

(6) Lift the clincher up and out.

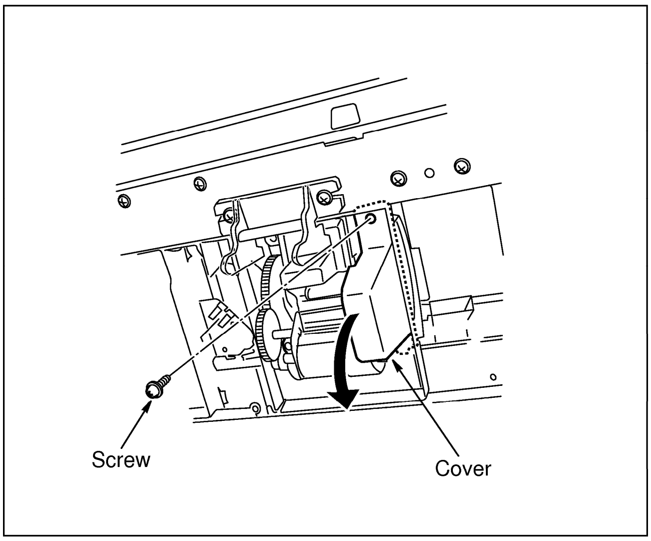


(7) To install the new clincher, carry out the above sequence in reverse.
(8) Adjust the stapler vertical positioning. (See page 1-81, Adjusting the Stapler Vertical Positioning”).

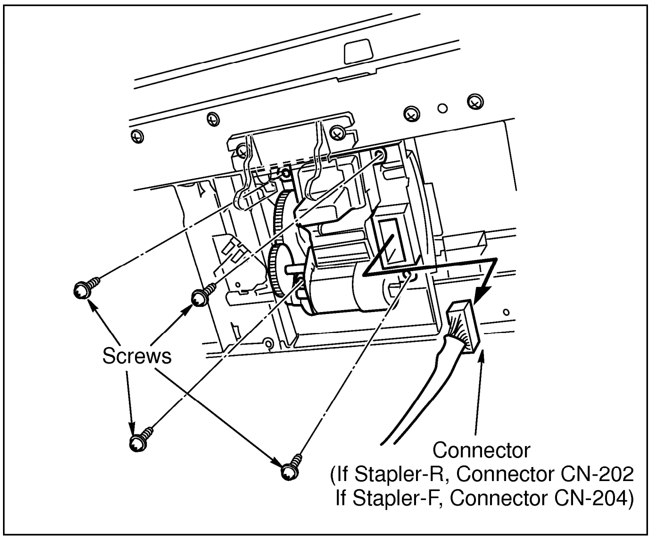
2. Removing and Reinstalling a Stapler

a. Procedure

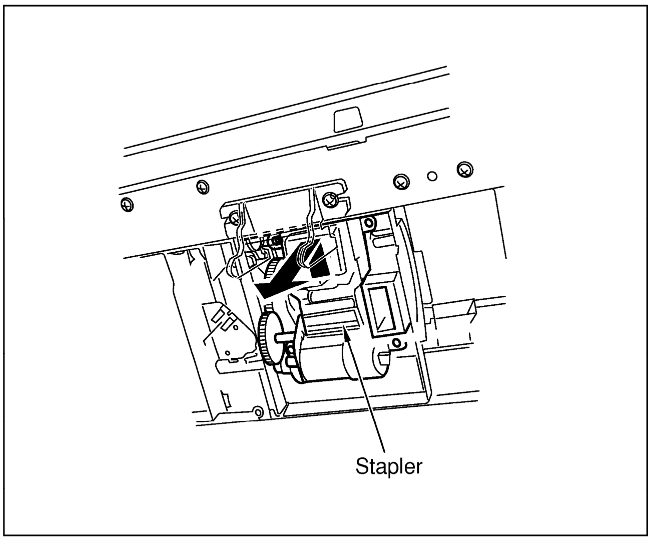
(1) Remove the front cover.
(2) Pull out the stacker/slider unit by pulling on the handle.
(3) Remove the cartridge from the stapler.
(4) Remove the set screw holding the connector cover in place, and remove the connector cover.


Screw
Cover

(5) Detach the stapler connector (if stapler-R, CN-202; if stapler-F, CN-204), and remove the 4 set screws holding the stapler in place.


Screws
Connector
(If Stapler-R, Connector CN-202
If Stapler-F, Connector CN-204)

(6) Lift the stapler slightly and remove it.

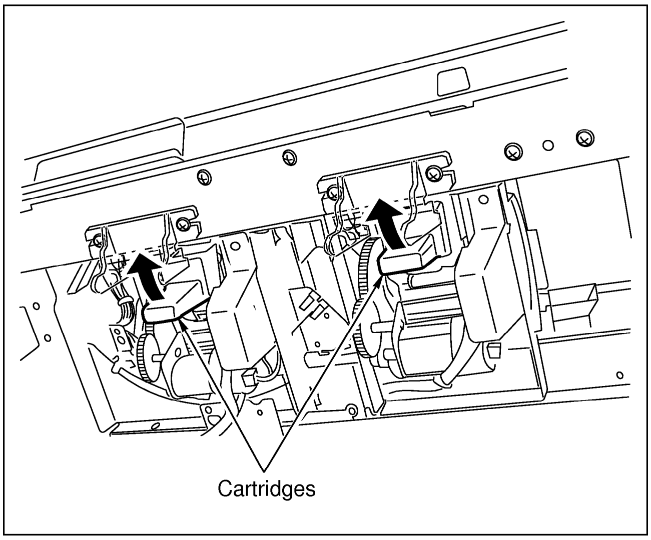


(7) Reinstall in the opposite sequence to removal.
(8) Adjust the stapler vertical positioning. (See page 1-81, Adjusting the Stapler Vertical Positioning”).

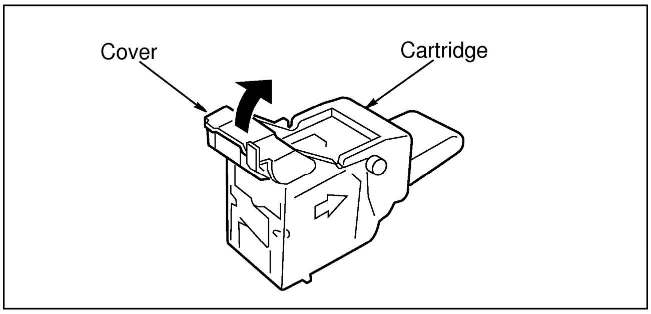
3. Clearing a Stapler Jam

a. Procedure

(1) Open the front cover.
(2) Pull out the stacker/ slider unit by pulling on the handle.
(3) Remove the cartridge from the stapler.

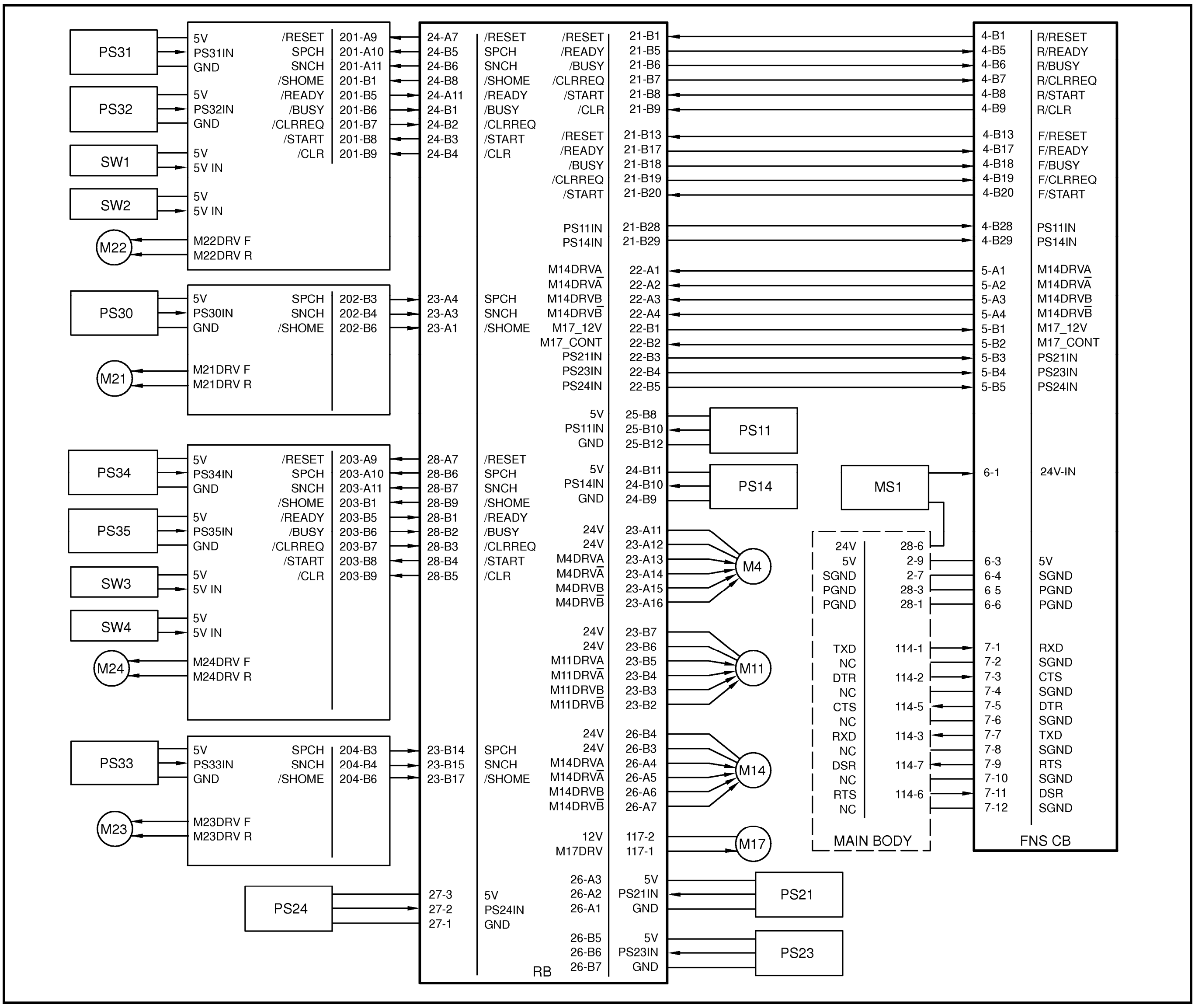


(4) Raise the cartridge cover.
(5) Remove the jammed staple(s).



(6) Reinstall in the opposite sequence to removal.

[4] Stapler Control


PS31
PS32
SW1
SW2
M22
PS30
M21
PS34
PS35
SW3
SW4
M24
PS33
M23
PS24
RB
PS11
PS14
MS1
M4
M11
M14
M17
PS21
PS23
MAIN BODY
FNS CB

M11 (stapler movement) and M4 (stapler rotation) move the stapler(s) and clincher(s) into position in accordance with the selected stapling mode. Once in position, the stapler(s) and clincher(s) execute stapling. A single stapling cycle is detected by ON-OFF-ON activation of the various stapler and clincher home-position sensors; specifically: PS31 (stapler HP/R), PS34 (stapler HP/F), PS30 (clincher HP/R), and PS33 (clincher HP/F). Operation is controlled by the FNS CB (FNS control board) via the RB (relay board).

1. Operation

a. Single-staple movement control (front)

M11 (stapler movement) comes ON when the main body issues the START button ON signal, moves stapler-F and clincher-F to the predetermined positions, and then stops. When single-staple mode is completed, M11 moves the staplers and clinchers back to the ON position of PS11 (stapler movement HP) and then stops.

b. Single-staple movement control (rear)

M11 (stapler movement) and M4 (staple rotation) come ON when the main body issues the START button ON signal, move stapler-R and clincher-R to the predetermined positions, and then stop. When single-staple mode is completed, M11 and M4 move the stapler and clincher back to the PS11 (stapler movement HP) and PS14 (stapler rotation HP) ON positions, and then stop.

c. Two-staple movement control

M11 (stapler movement) and M4 (staple rotation) come ON when the main body issues the START button ON signal, move the staplers and clinchers to the predetermined positions, and then stops. When two-staple mode is completed, M11 and M4 moves the staplers and clinchers back to the ON position of PS11 (stapler movement HP) and then stops.

d. Control of the stapling-and-folding stopper (stapling & folding) (FS-108BM only)

On receipt of the START button ON signal, the stapling-and-folding stopper is moved and set into position. M14 (stapling-and-folding stopper) moves the stopper into position, and M17 (stapling-and-folding stopper release) sets it. When stapling action is completed, M17 releases the stopper and the papers move to the folding unit. Setting and releasing of the stopper is repeated for each paper set (each set of papers).

When PS25 (folding exit) detects exiting of the final paper set, M14 returns the stopper to its home position. Arrival at home position is detected by P23 (stapling-and-folding stopper HP).

e. Control of the stapler paper-end stopper (folding) (FS-108BM only)

On receipt of the START button ON signal, the stapling-and-folding stopper is moved and set into position. M14 (stapling-and-folding stopper) moves the stopper into position, and M17 (stapling-and-folding stopper release) sets it.

A preset period after PS5 (stacker conveyance passage) detects the final paper set, M17 releases the stopper and the papers move to the folding unit. Setting and releasing of the stopper is repeated for each paper set.

A preset period after PS25 (folding exit) detects the passage of the final paper set, M14 returns the stopper to its home position. Arrival at home position is detected by P23 (stapling-and-folding stopper HP).

f. Stapler action control

Upon closing of the alignment plates/upper and alignment plates/lower (if booklet mode), M22 (stapler/R) and M24 (staple/F) come ON, causing the staple-eject plates to begin stapling. As the stapling operation progresses, stapler-internal sensors PS32 (clincher timing/R) and PS35 (clincher timing/F) come ON, causing clincher-internal motors M21 (clincher/R) and M23 (clincher/F) to come ON, thereby initiating the clinching action.

Staple action is completed when the following HP sensors have come ON, detecting home positions: PS31 (stapler HP/R), PS34 (stapler HP/F), PS30 (clincher HP/R), and PS33 (clincher HP/F).

A staple-jam condition is detected if PS31, PS34, PS30, or PS33 fails to come back ON within a preset time period after going OFF. M22, M24, M21, and M23 turn in reverse until the corresponding components have returned to home position (until PS31, PS34, PS30, and PS33 come ON).

Control of these operations is implemented by the FNS CB (FNS control board) via the RB (relay board).

g. Cartridge detection

Stapler-internal switches SW1 (cartridge detection/R) and SW3 (cartridge detection/F) detect the presence or absence of the respective cartridge. The switch outputs an error signal if the cartridge is missing or is improperly set.

h. Staple-low detection

SW2 (staple detection/R) or SW4 (staple detection/F) comes ON and outputs an error signal when the amount of staples in the respective cartridge runs low.

2. Signals

a. Input signals

(1) TXD (Main-Body CB → FNS CB)
Serial data line; transmits operating status of the main body's CB to the FNS CB.

(2) RTS (Main-Body CB → FNS CB)
Request to send signal from the main body to the FNS.

(3) DTR (Main-Body CB → FNS CB)
Transmission acknowledgment signal from the main body to the FNS.

(4) PS11 IN (PS11 → RB → FNS CB)
ON (L) when staplers are in home position with respect to displacement.

(5) PS14 IN (PS14 → RB → FNS CB)
ON (L) when stapler-R is in home position with respect to rotation.

(6) PS21 IN (PS21 → RB → FNS CB)
ON (L) when the stapling-and-folding stopper is released.

(7) PS23 IN (PS23 → RB → FNS CB)
ON (L) when the stapling-and-folding stopper is in home position.

(8) PS24 IN (PS24 → RB → FNS CB)
ON (L) when the lower alignment plates are in home position.

(9) PS30 IN (PS30 → RB → FNS CB)
ON (L) when clincher-R is in position for clinching.

(10) PS31 IN (PS31 → RB → FNS CB)
ON (L) when stapler-R is in position for stapling.

(11) PS32 IN (PS32 → RB → FNS CB)
Comes ON (H) at time when clincher-R must begin clinching operation.

(12) PS33 IN (PS33 → RB → FNS CB)
ON (L) when clincher-F is in position for clinching.

(13) PS34 IN (PS34 → RB → FNS CB)
ON (L) when stapler-F is in position for stapling.

(14) PS35 IN (PS35 → RB → FNS CB)
Comes ON (H) at time when clincher-F must begin clinching operation.

(15) SW1 IN (SW1 → RB → FNS CB)
Comes ON and inputs an error code if the stapler-R cartridge is missing or improperly set.

(16) SW2 IN (SW2 → RB → FNS CB)
Comes ON and inputs an error code if stapler-R is empty of staples.

(17) SW3 IN (SW3 → RB → FNS CB)
Comes ON and inputs an error code if the stapler-F cartridge is missing or improperly set.

(18) SW4 IN (SW4 → RB → FNS CB)
Comes ON and inputs an error code if stapler-F is empty of staples.

(19) RESET (Main-Body CB → FNS CB → RB)
Stops all operation and clears error code.

(20) START (Main-Body CB → FNS CB → RB)
Request for stapling, from main body to FNS.

(21) CLR (Main-Body CB → FNS CB → RB)
Request to clear error code and return staplers to home position.

b. Output signals

(1) TXD (FNS CB → Main-Body CB)
Serial data line; transmits FNS operating status to the main body's CB.

(2) RTS (FNS CB → Main-Body CB)
Request to send signal from the FNS to the main body.

(3) DTR (FNS CB → Main-Body CB)
Transmission acknowledgment signal from the FNS to the main body.

(4) M4 DRV A, $\overline{A}$, B, $\overline{B}$ (FNS CB → RB → M4)
M4 (stapler-R) drive signals.

(5) M11 DRV A, $\overline{A}$, B, $\overline{B}$ (FNS CB → RB → M11)
M11 (stapler movement) drive control signals.

(6) M14 DRV A, $\overline{A}$, B, $\overline{B}$ (FNS CB → RB → M14)
M14 (stapler movement) drive control signals.

(7) M17 DRV A, $\overline{A}$, B, $\overline{B}$ (FNS CB → RB → M17)
M17 (stapler movement) drive control signals.

(8) M21 DRV F, R (FNS CB → RB → M21)
M21 (clincher drive) drive control signals.

(9) M22 DRV F, R (FNS CB → RB → M22)
M22 (staple drive) drive signals.

(10) M23 DRV F, R (FNS CB → RB → M23)
M23 (clincher drive) drive control signals.

(11) M24 DRV F, R (FNS CB → RB → M24)
M24 (staple drive) drive signals.

(12) BUSY (RB → FNS CB → Main-Body CB)
Outputs [L] while staple operation is in progress.

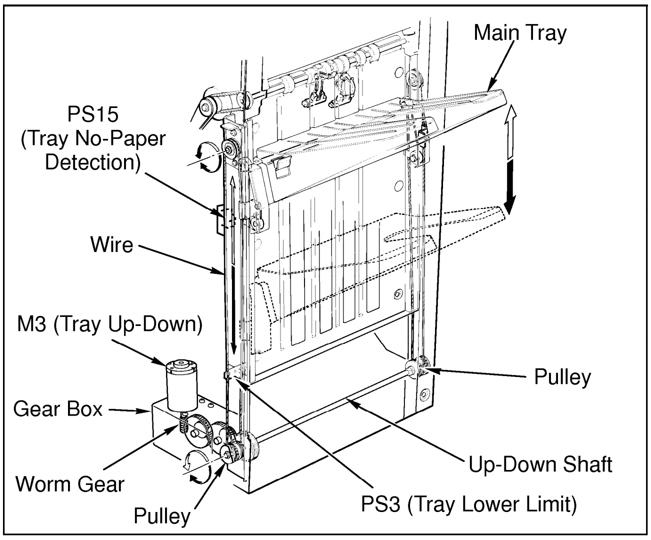
(13) READY (RB → FNS CB → Main-Body CB)
Outputs [L] when stapling system is prepared to begin stapling.

(14) CLRREQ (RB → FNS CB → Main-Body CB)
CLR request from the FNS to the main body..

(15) EC00, EC01, EC02 (RB → FNS CB → Main-Body CB)
Error codes transmitted from the FNS to the main body.

MAIN TRAY SECTION

[1] Composition


Main Tray
PS15
(Tray No-Paper
Detection)
Wire
M3 (Tray Up-Down)
Gear Box
Worm Gear
Pulley
Pulley
Up-Down Shaft
PS3 (Tray Lower Limit)

[2] Mechanism

1. Raising and lower (Main tray up-down)

The rotation of the tray up-down motor (M3) turns the worm gear on the motor's shaft. The rotational force propagates through the gear box and turns the up-down shaft, thereby turning the pulleys fixed to the ends of the shaft (one pulley at each end). The wires attached to the pulleys cause the tray to move up and down.

Clockwise turning of the M3 worm gear generates upward tray movement, while counterclockwise turning generates downward movement.

[3] Disassembly and Reassembly

⚠ **CAUTION: Be sure that the power cord has been unplugged from the outlet.**

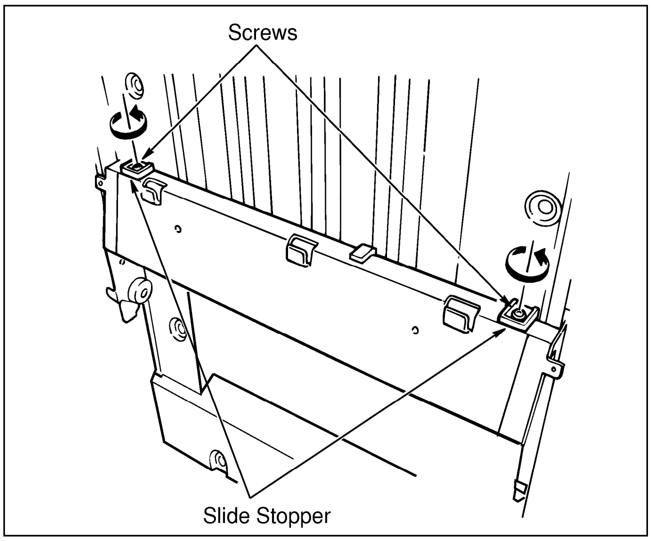
1. Removing and Reinstalling the Up-Down Stay

a. Procedure

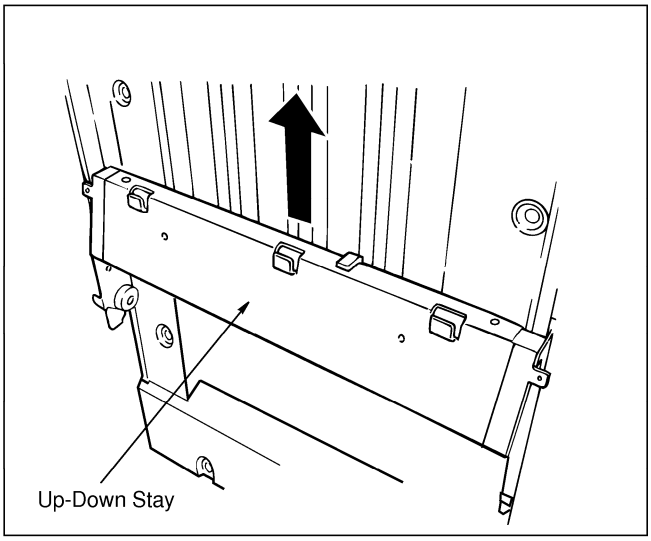
(1) Remove the following parts.
- Rear cover
- Front cover
- Front side cover
- Main tray

(2) With the up-down stay and exit-stopper plate in contact, remove the exit-stopper plate. (See "Removing and Reinstalling the Exit Stopper Plate.")

(3) Remove the two slide stoppers (removing one screw at each stopper).


Screws
Slide Stopper

(4) Slide the up-down stay upward to remove it.


Up-Down Stay

(5) Reinstall the stay in the opposite sequence to removal.

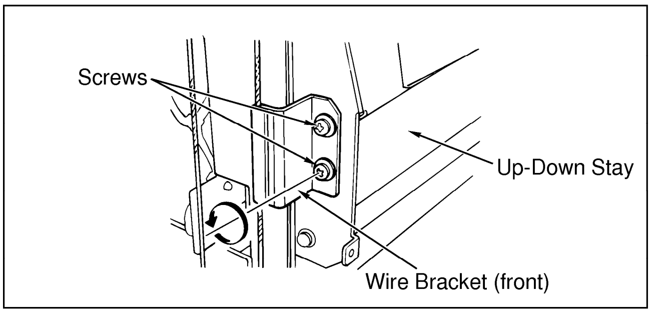
1. Exchanging the up-down wire

a. Procedure

CAUTION: The following procedure shows replacement of the rear wire Removal of the front wire is similar, but relationships are inverted (mirror image).

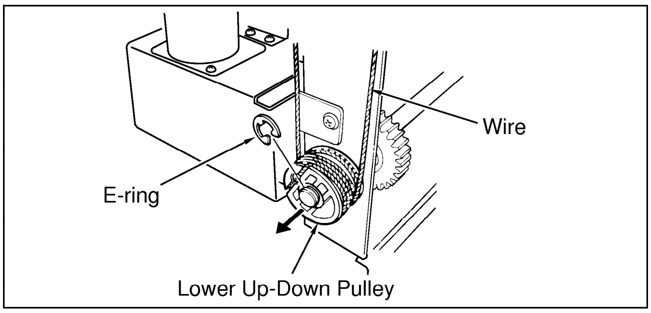
(1) Remove the following parts.
- Rear cover
- Front cover
- Front side cover
- Main tray

(2) Remove the 4 wire-bracket set screws (2 screws at the front wire bracket and 2 screws at the rear wire bracket), and take off the up/down stay.

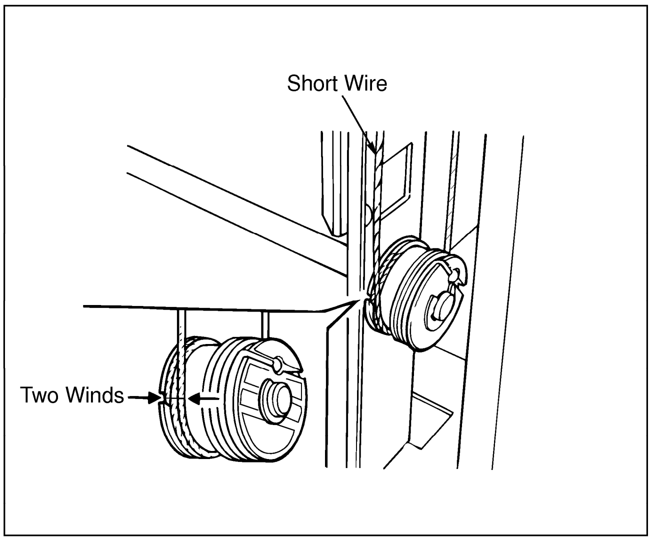

Screws
Up-Down Stay
Wire Bracket (front)

(3) Remove the E-ring and the lower up-down pulley, and remove the wire you are replacing.

CAUTION: There is a pin located in the inside of the pulley. Take care to avoid losing the pin when removing the pulley.


Wire
E-ring
Lower Up-Down Pulley

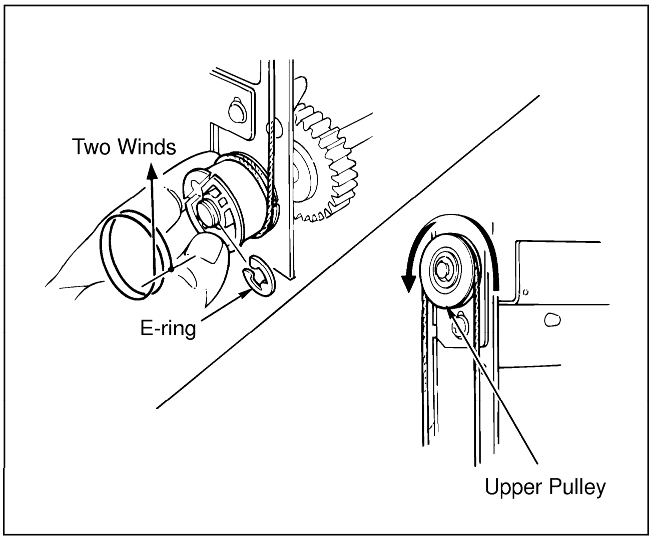
(4) Move the up-down stay as necessary so that front inner wire (the shorter side from the wire bracket) is wound twice around the pulley.


Short Wire
Two Winds

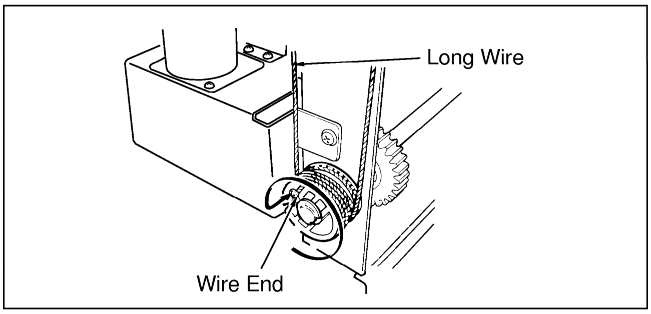
(5) Wind the shorter side of the rear wire (relative to the wire bracket) twice around the up-down pulley.

(6) Adjust the wire-bracket position so that it is even with the front wire bracket. Insert the pin, and then fasten the pulley into place with the E-ring.

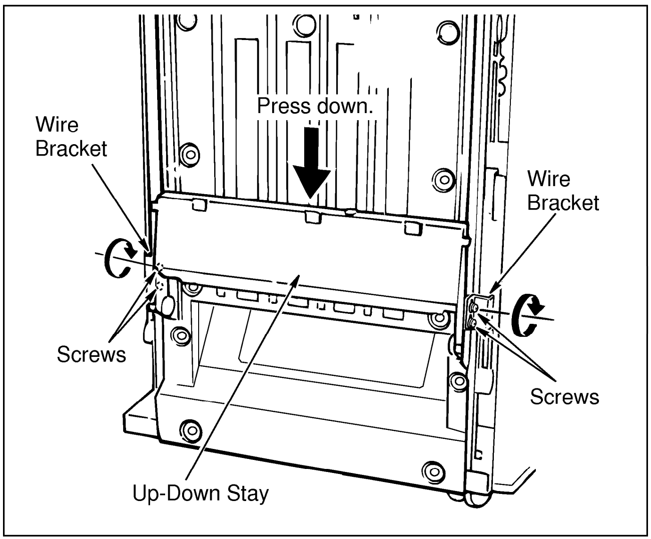
(7) Fit the wire onto the upper pulley.


Two Winds
E-ring
Upper Pulley

(8) Wind the opposite side of the wire (the long side) from the inside of the up-down pulley toward the outside, and fix the wire end in place.

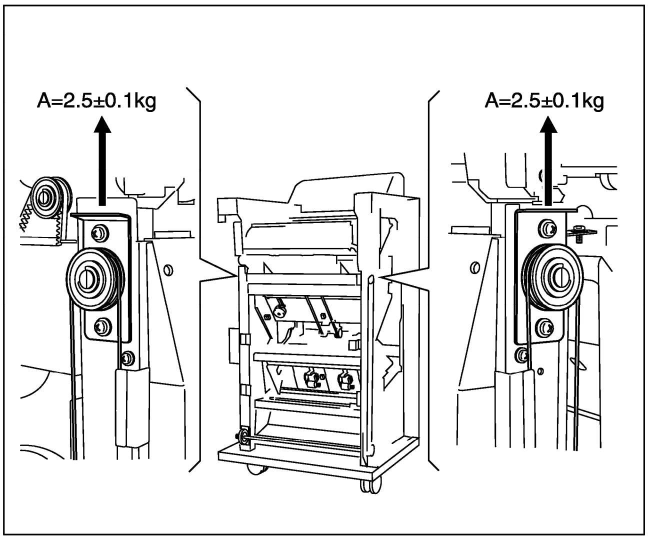

Long Wire
Wire End

(9) Press down on the up-down stay and refasten the 4 wire-bracket set screws.


Wire Bracket
Press down.
Wire Bracket
Screws
Screws
Up-Down Stay

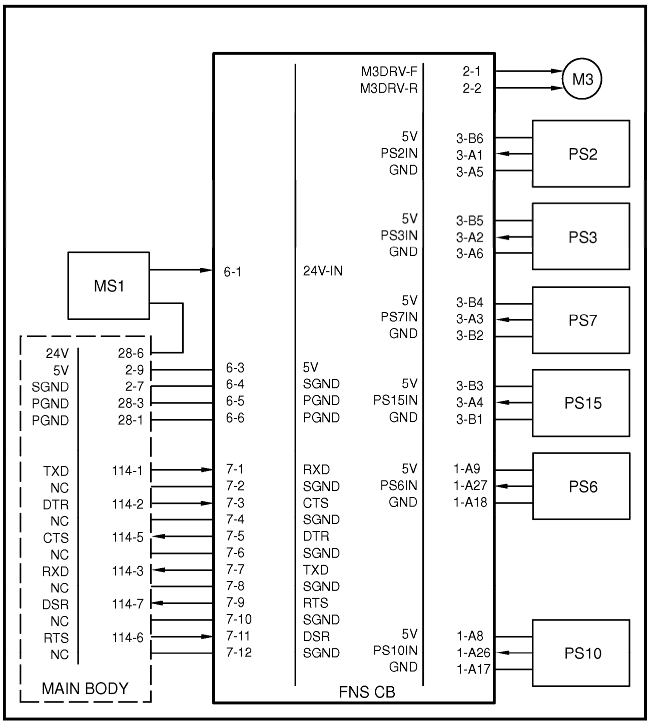
(10) Loosen the two belt-tensioner set screws.

(11) Using a tension gauge or spring balance, pull the belt tensioner so that tension A is at the value indicated below. Maintain this tension while re-tightening the screws.
Spec value for tension: A = 2.5±0.1kg


A=2.5±0.1kg
A=2.5±0.1kg

(12) Reinstall the wire in the opposite sequence to removal.

[4] Main-Tray Up/Down Control

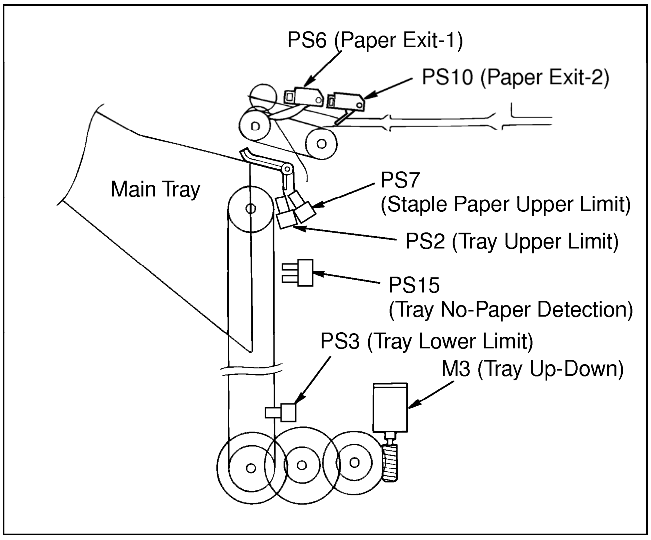

M3DRV-F
M3DRV-R
2-1
2-2
M3
5V
PS2IN
GND
3-B6
3-A1
3-A5
PS2
5V
PS3IN
GND
3-B5
3-A2
3-A6
PS3
MS1
6-1
24V-IN
5V
PS7IN
GND
3-B4
3-A3
3-B2
PS7
24V
5V
SGND
PGND
PGND
28-6
2-9
2-7
28-3
28-1
6-3
6-4
6-5
6-6
5V
SGND
PGND
PGND
5V
PS15IN
GND
3-B3
3-A4
3-B1
PS15
TXD
NC
DTR
NC
CTS
NC
RXD
NC
DSR
NC
RTS
NC
114-1
114-2
114-5
114-3
114-7
114-6
7-1
7-2
7-3
7-4
7-5
7-6
7-7
7-8
7-9
7-10
7-11
7-12
RXD
SGND
CTS
SGND
DTR
SGND
TXD
SGND
RTS
SGND
DSR
SGND
5V
PS6IN
GND
1-A9
1-A27
1-A18
PS6
5V
PS10IN
GND
1-A8
1-A26
1-A17
PS10
MAIN BODY
FNS CB

M3 (tray up-down) drives the main tray up and down. Clockwise rotation drives the tray up; counterclockwise rotation drives it down. M3 is controlled by the FNS CB (FNS control board).

1. Operation

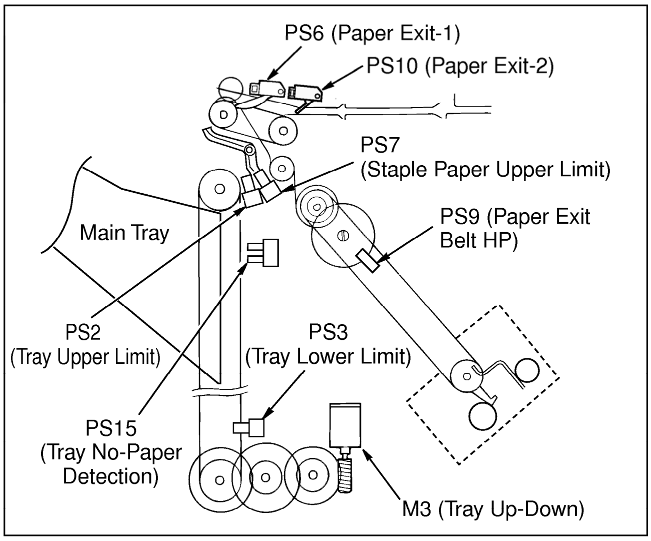
a. Sort, Group, and Non-Sort modes

M3 (tray up-down) begins lowering the tray when PS10 (paper exit-2) detects the passage of paper. It lowers the tray until PS2 (tray upper limit) goes OFF, then raises it until PS2 comes ON, and then stops.


PS6 (Paper Exit-1)
PS10 (Paper Exit-2)
Main Tray
PS7
(Staple Paper Upper Limit)
PS2 (Tray Upper Limit)
PS15
(Tray No-Paper Detection)
PS3 (Tray Lower Limit)
M3 (Tray Up-Down)

b. Staple mode (flat stapling)

M3 starts lowering the stray a preset period after M7 (paper exit roller) comes ON. When PS6 (paper exit-1) detects the trailing edge of the stapled set, M3 begins raising the tray, and continues to raise it until PS7 (staple paper upper limit) comes on.


PS6 (Paper Exit-1)
PS10 (Paper Exit-2)
PS7
(Staple Paper Upper Limit)
Main Tray
PS9 (Paper Exit Belt HP)
PS2
(Tray Upper Limit)
PS3
(Tray Lower Limit)
PS15
(Tray No-Paper Detection)
M3 (Tray Up-Down)

2. Signals

a. Input signals

(1) TXD (Main-Body CB → FNS CB)
Serial data line; transmits operating status of the main body's CB to the FNS CB.

(2) DTR(Main-Body CB → FNS CB)
Request to send signal from the main body to the FNS.

(3) RTS(Main-Body CB → FNS CB)
Transmission acknowledgment signal from the main body to the FNS.

(4) PS2 IN (PS2 → FNS CB)
ON (H) when the main tray is at the upper limit position.

(5) PS3 IN (PS3 → FNS CB)
ON (L) when the main tray is at the lower limit position.

(6) PS6 IN (PS6 → FNS CB)
ON ([L]) when paper passage is detected at the FNS exit.

(7) PS7 IN (PS7 → FNS CB)
ON ([L]) at paper ejection

(8) PS10 IN (PS10 → FNS CB)
ON (L) at paper ejection.

(9) PS15 IN (PS15 → FNS CB)
ON (L) when the main tray is at the upper limit. Resets the tray paper counter.

b. Output signals

(1) TXD (FNS CB → Main-Body CB)
Serial data line; transmits FNS operating status to the main body's CB.

(2) RTS (FNS CB → Main-Body CB)
Request to send signal from the FNS to the main body.

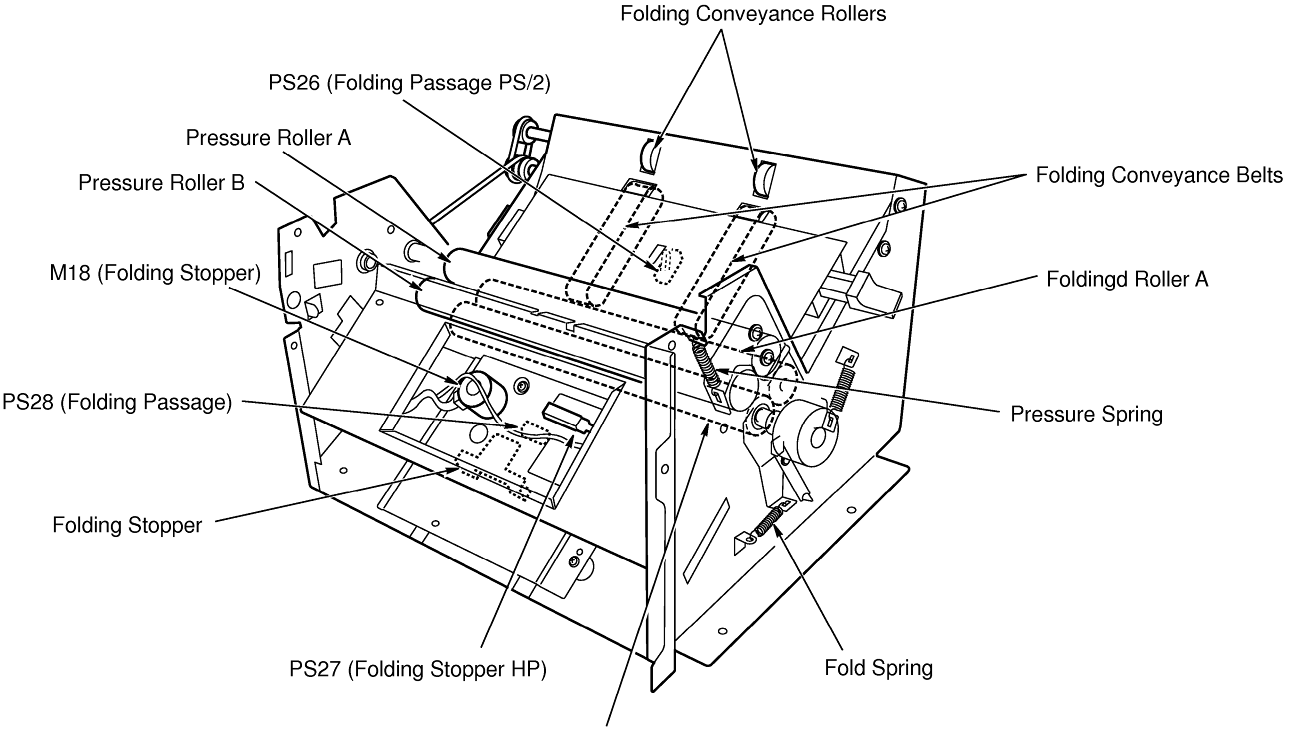
(3) DTR (FNS CB → Main-Body CB)
Transmission acknowledgment signal from the FNS to the main body.

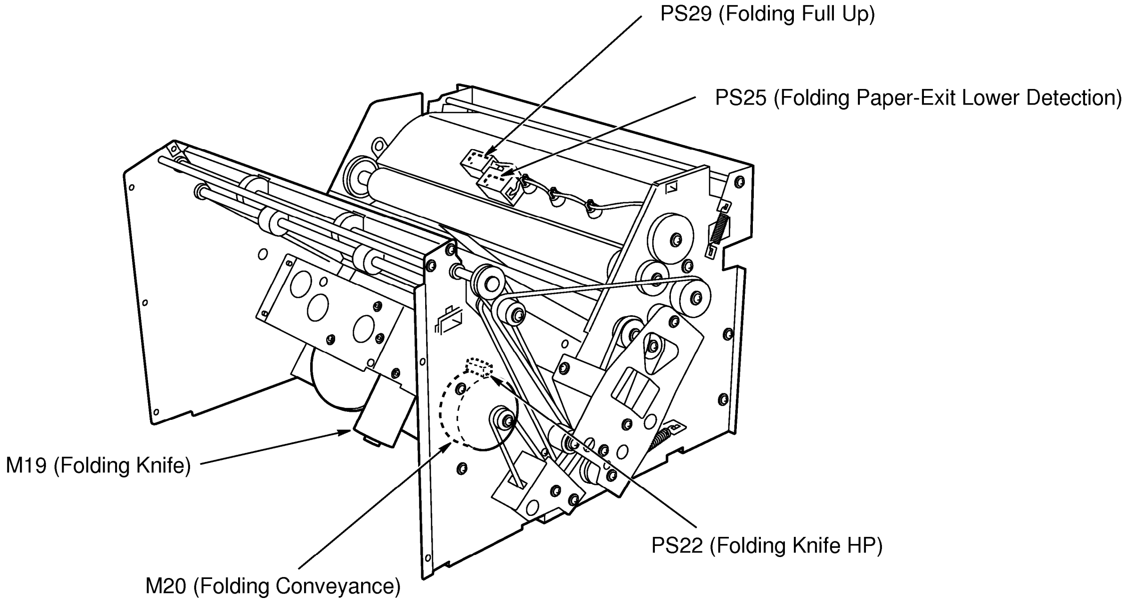
(4) M3 DRV-F (FNS CB → M3)
M3 (tray up-down) forward drive control signal.

(5) M3 DRV-R (FNS CB → M3)
M3 (tray up-down) reverse drive control signal.

FOLDING UNIT (FS-108BM ONLY)

[1] Composition


Folding Conveyance Rollers
PS26 (Folding Passage PS/2)
Pressure Roller A
Pressure Roller B
Folding Conveyance Belts
M18 (Folding Stopper)
Foldingd Roller A
PS28 (Folding Passage)
Pressure Spring
Folding Stopper
PS27 (Folding Stopper HP)
Fold Spring
Folding Roller B

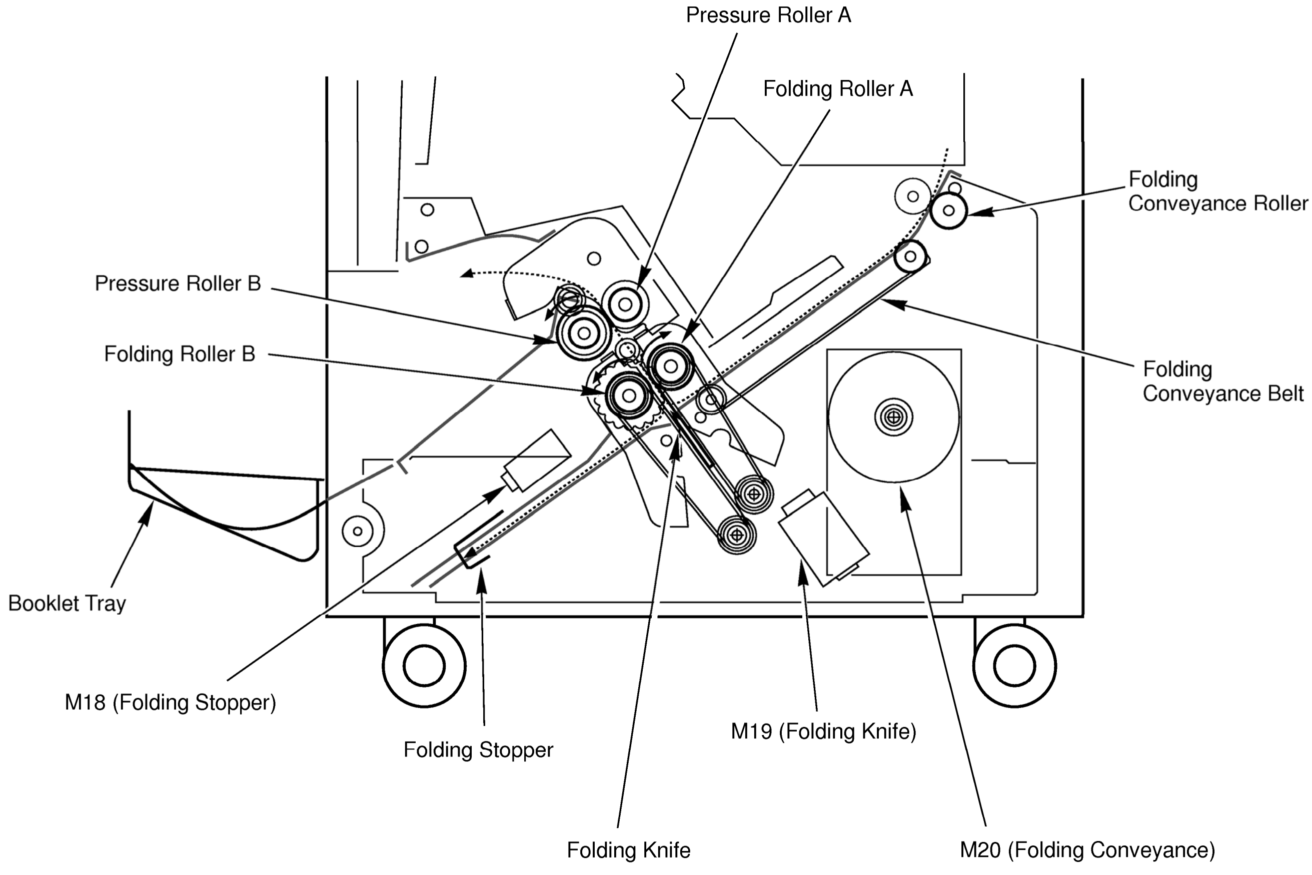

PS29 (Folding Full Up)
PS25 (Folding Paper-Exit Lower Detection)
M19 (Folding Knife)
PS22 (Folding Knife HP)
M20 (Folding Conveyance)

[2] Mechanism

1. Folding operation

M18 (folding stopper) moves the folding stopper into the predetermined position. M20 (folding conveyance) drives the folding conveyance rollers and conveyance belt so as to transport the paper up to this stopper.

M19 (folding knife) drives the folding knife. Paper is folded over by the action of the knife and folding rollers, and the fold is pressurized by the action of the folding rollers and the pressure rollers. M20 drives the folding rollers and pressure rollers so as to eject the folded paper set into the booklet tray.

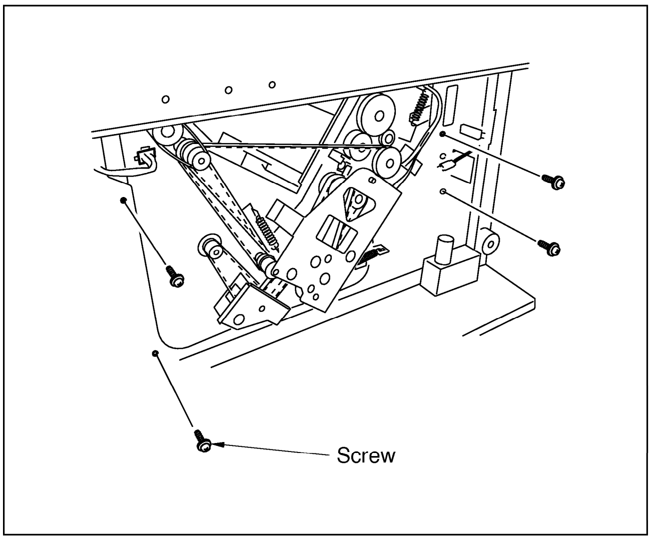

Pressure Roller A
Folding Roller A
Folding Conveyance Roller
Pressure Roller B
Folding Roller B
Folding Conveyance Belt
Booklet Tray
M18 (Folding Stopper)
Folding Stopper
M19 (Folding Knife)
Folding Knife
M20 (Folding Conveyance)

[3] Disassembly and Reassembly

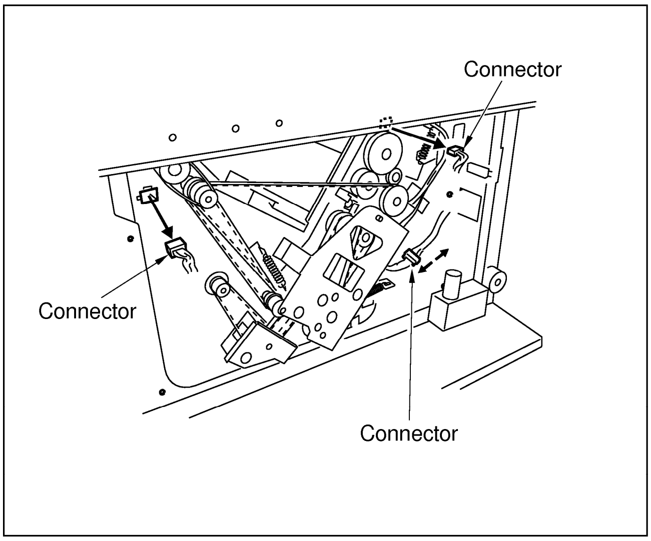
1. Removing and Reinstalling the Folding Unit

a. Procedure

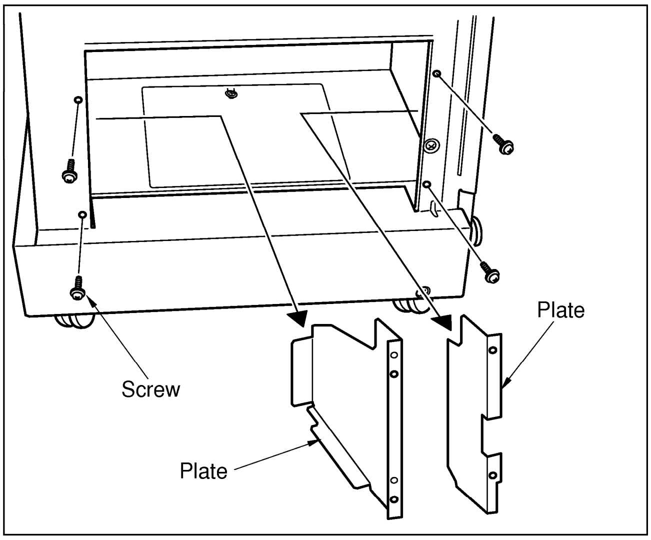
(1) Remove the plate on the fold exit side.
(2) Remove the rear cover.
(3) Remove 4 set screws at the rear, as illustrated below.



(4) Detach 3 connectors.



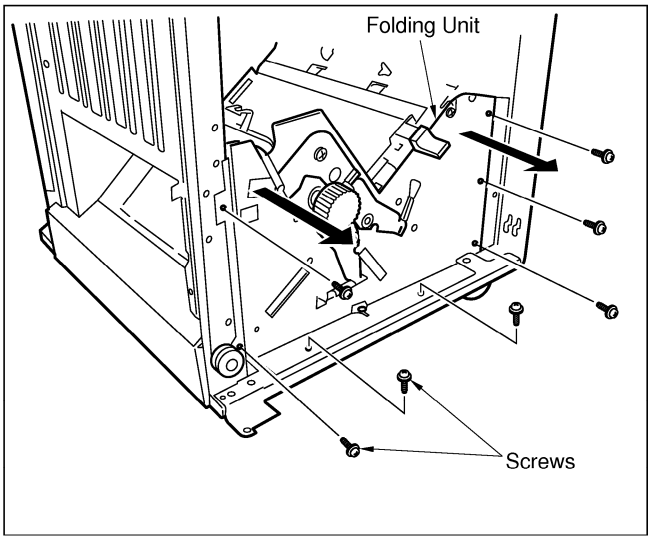
(5) Remove the two plates from the booklet exit (one plate on each side).



(6) Remove 7 set screws at the front.
(7) Pull the folding unit out and off.

CAUTION: Be careful to keep the unit clear of the up/down wires when removing it.

CAUTION: Be careful to keep the harness from catching on the FNS body.



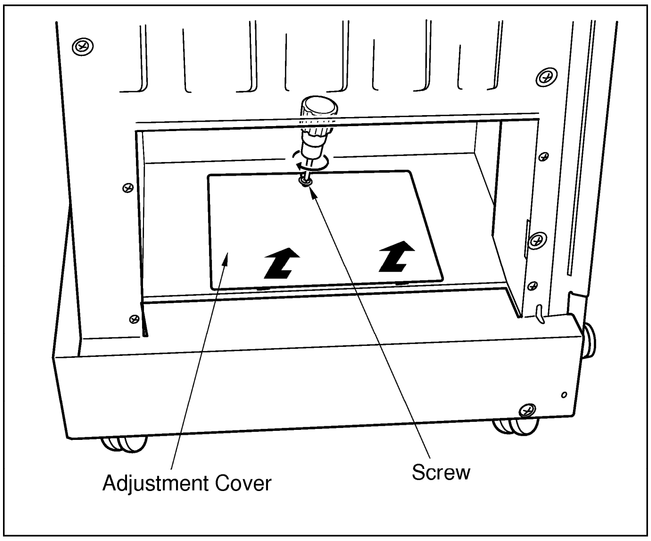
(8) Reinstall the unit in the opposite sequence to removal.

CAUTION: When reinstalling the folding unit, take care to keep the connectors and harness from getting caught between the unit and the FNS body.

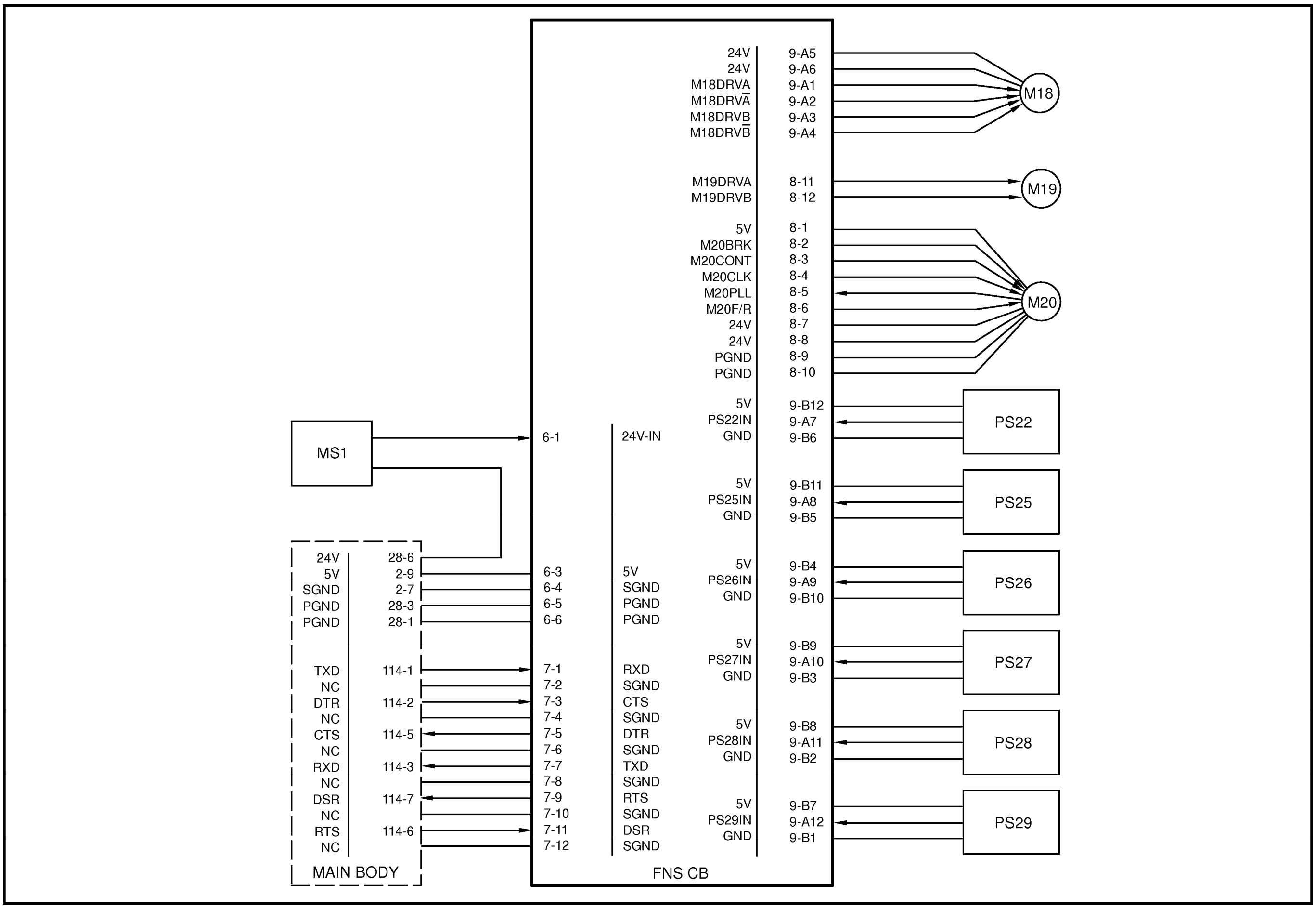
2. Removing and Reinstalling the Adjustment Cover

a. Procedure

(1) Use a stubby screwdriver to remove the set screw holding the cover in place, and take the cover off.


Adjustment Cover
Screw

[4] Folding-Unit Control


24V 9-A5
24V 9-A6
M18DRVA 9-A1
M18DRVĀ 9-A2
M18DRVB 9-A3
M18DRVB̄ 9-A4
M18
M19DRVA 8-11
M19DRVB 8-12
M19
5V 8-1
M20BRK 8-2
M20CONT 8-3
M20CLK 8-4
M20PLL 8-5
M20F/R 8-6
24V 8-7
24V 8-8
PGND 8-9
PGND 8-10
M20
5V 9-B12
PS22IN 9-A7
GND 9-B6
PS22
5V 9-B11
PS25IN 9-A8
GND 9-B5
PS25
5V 9-B4
PS26IN 9-A9
GND 9-B10
PS26
5V 9-B9
PS27IN 9-A10
GND 9-B3
PS27
5V 9-B8
PS28IN 9-A11
GND 9-B2
PS28
5V 9-B7
PS29IN 9-A12
GND 9-B1
PS29
MS1
6-1 24V-IN
24V 28-6
5V 2-9 6-3 5V
SGND 2-7 6-4 SGND
PGND 28-3 6-5 PGND
PGND 28-1 6-6 PGND
TXD 114-1 7-1 RXD
NC 7-2 SGND
DTR 114-2 7-3 CTS
NC 7-4 SGND
CTS 114-5 7-5 DTR
NC 7-6 SGND
RXD 114-3 7-7 TXD
NC 7-8 SGND
DSR 114-7 7-9 RTS
NC 7-10 SGND
RTS 114-6 7-11 DSR
NC 7-12 SGND
MAIN BODY
FNS CB

M18 (folding stopper) drives the folding stopper in accordance with the paper size. M20 (folding conveyance) transports the paper into position for folding. Folding is implemented by the action of the folding knife and the folding rollers.

The folding rollers and pressure rollers apply pressure to the folded paper set while at the same time exiting it to the booklet tray.

The folding knife is driven by M19 (folding-knife).

1. Operation

On receipt of the START button ON signal from the main body, M18 (folding stopper) moves the folding stopper into the predetermined position.

Upon completion of paper stapling, M20 (folding conveyance) starts up and drives the folding conveyance rollers and folding conveyance belt so as to transport the stapled paper set up to the stopper.

Switching ON of PS28 (folding passage/1) causes M20 to stop and M19 (folding knife) to start. The paper is folded by the folding knife and folding rollers A and B.

Upon completion of folding, M20 starts again, driving folding rollers and pressure rollers so as to exit the folded set into the booklet tray.

When PS25 (folding exit) detects exiting of the paper set, M20 stops and M18 moves the folding stopper to its home position, stopping when PS27 (folding stopper HP) comes ON.

Control of these operations is implemented by the FNS CB (FNS control board).

2. Signals

a. Input signals

(1) TXD (Main-Body CB → FNS CB)
Serial data line; transmits operating status of the main body's CB to the FNS CB.

(2) DTR (Main-Body CB → FNS CB)
Request to send signal from the main body to the FNS.

(3) RTS (Main-Body CB → FNS CB)
Transmission acknowledgment signal from the main body to the FNS.

(4) PS22 IN (PS22 → FNS CB)
Home-position detection signal for the folding knife. [L] when the knife is in home position.

(5) PS25 IN (PS25 → FNS CB)
Comes ON ([L]) when paper is ejected.

(6) PS26 IN (PS26 → FNS CB)
Comes ON ([L]) when paper passage is detected.

(7) PS27 IN (PS27 → FNS CB)
Home-position detection signal for the folding stopper. [L] when the stopper is in home position.

(8) PS28 IN (PS28 → FNS CB)
Comes ON ([L]) when paper passage is detected.

(9) PS29 IN (PS29 → FNS CB)
Comes ON ([L]) when paper-full condition is detected.

(10) M20 PLL (M20 → FNS CB)
Monitors rotation status of M20 (folding conveyance).
[L] indicates that M20 has reached operational speed.

b. Output signals

(1) TXD (FNS CB → Main-Body CB)
Serial data line; transmits FNS operating status to the main body's CB.

(2) RTS (FNS CB → Main-Body CB)
Request to send signal from the FNS to the main body.

(3) DTR (FNS CB → Main-Body CB)
Transmission acknowledgment signal from the FNS to the main body.

(4) M18 DRV A / M18 DRV B (FNS CB → M18)
M18 (folding stopper) drive control signals.

(5) M19 DRV A, $\overline{A}$, B, $\overline{B}$ (FNS CB → M19)
M19 (folding knife) drive control signals.

(6) M20 BRK (FNS CB → M20)
M20 (folding conveyance) brake signal.
[H]: OFF
[L]: ON

(7) M20 CONT (FNS CB → M20)
M20 (folding conveyance) drive control signal.
[H]: OFF
[L]: ON

(8) M20 CLK (FNS CB → M20)
Reference clock signal for controlling the speed of M20 (folding conveyance).

(9) M20 F/R (FNS CB → M20)
M20 (folding conveyance) rotation direction signal.
[H]: Counterclockwise
[L]: Clockwise

FS-108/FS-108BM Adjustments

[1] Adjusting the Magnets on Conveyance Guide Plate B

1. Tool used

- Phillips-head screwdriver

2. Preparation

(1) Open the front cover.

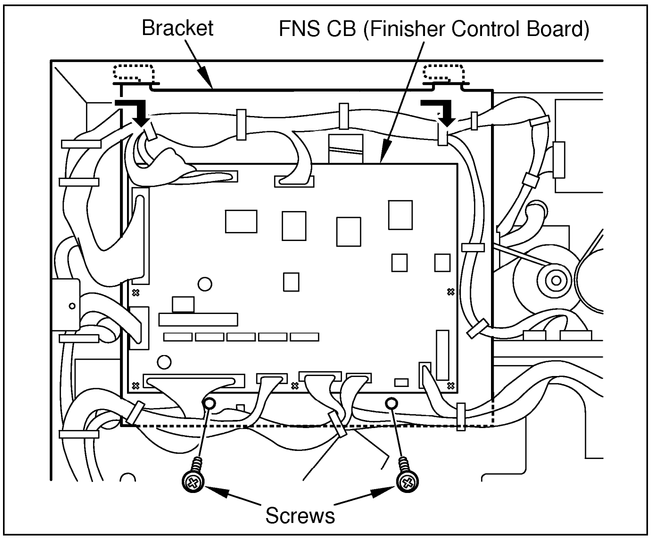
(2) Check whether conveyance guide plate B makes contact with the cushioning rubber when the magnets are stuck to conveyance guide plate A.

(3) If plate B does not make contact with the cushioning rubber, remove the rear cover and carry out adjustment as described below.

3. Adjustment Procedure

(1) Detach all FNS CB (FNS control board) connectors.

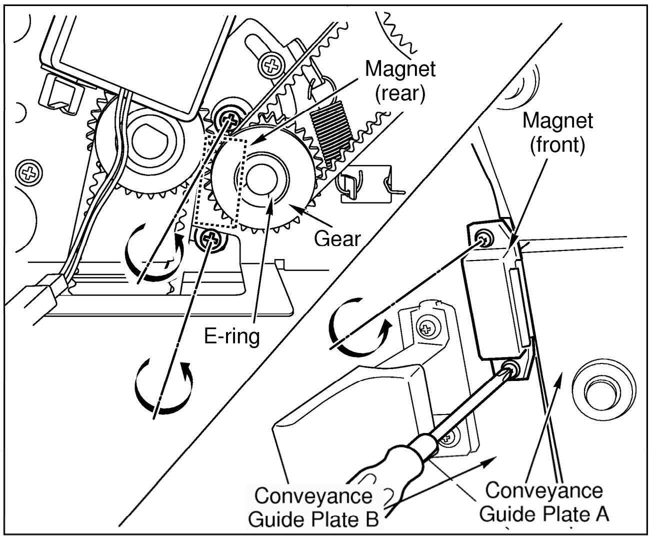
(2) Remove the 2 set screws holding the FNS CB in place. Remove the FNS CB together with its bracket.


Bracket
FNS CB (Finisher Control Board)
Screws

(3) Loosen the 4 magnet-holding set screws (two at the front and two at the back), and move conveyance guide plate B all the way in the direction indicated by the arrow.

(4) Remove the E-ring and the gear.

(5) Adhere the magnets to conveyance guide plate A and retighten the set screws.


Magnet (rear)
Magnet (front)
Gear
E-ring
Conveyance Guide Plate B
Conveyance Guide Plate A

(5) Reassemble in opposite sequence to removal.

[2] Adjusting the Magnets on Conveyance Guide Plate C

1. Tool used

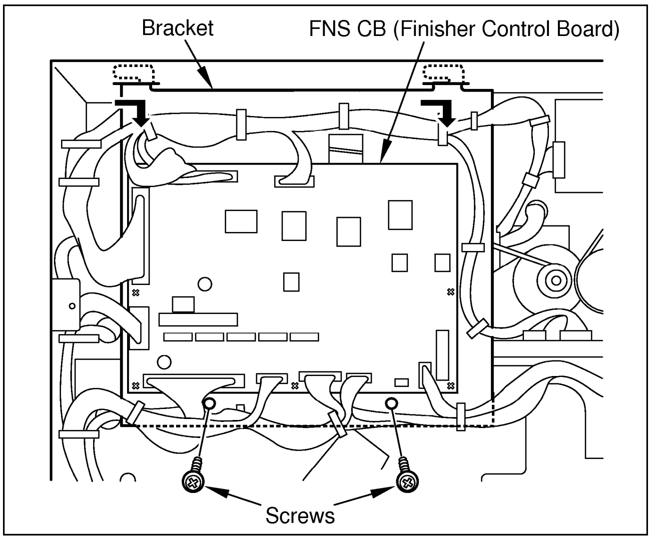
- Phillips-head screwdriver

2. Preparation

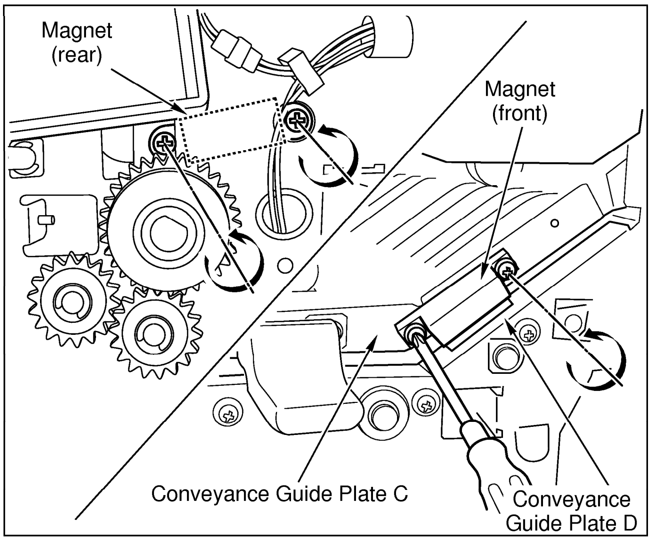
(1) Open the front cover.
(2) Check whether conveyance guide plate C makes contact with the cushioning rubber when the magnets are stuck to conveyance guide plate D.
(3) If plate C does not make contact with the cushioning rubber, remove the rear cover and carry out adjustment as described below.

3. Adjustment Procedure

(1) Detach all FNS CB (FNS control board) connectors.
(2) Remove the 2 set screws holding the FNS CB in place. Remove the FNS CB together with its bracket.


Bracket
FNS CB (Finisher Control Board)
Screws

(3) Loosen the 4 magnet-holding set screws (two at the front and two at the back), and move conveyance guide plate C all the way in the direction indicated by the arrow.
(4) Adhere the magnets to conveyance guide plate A and retighten the screws.


Magnet (rear)
Magnet (front)
Conveyance Guide Plate C
Conveyance Guide Plate D

(5) Reassemble in opposite sequence to removal.

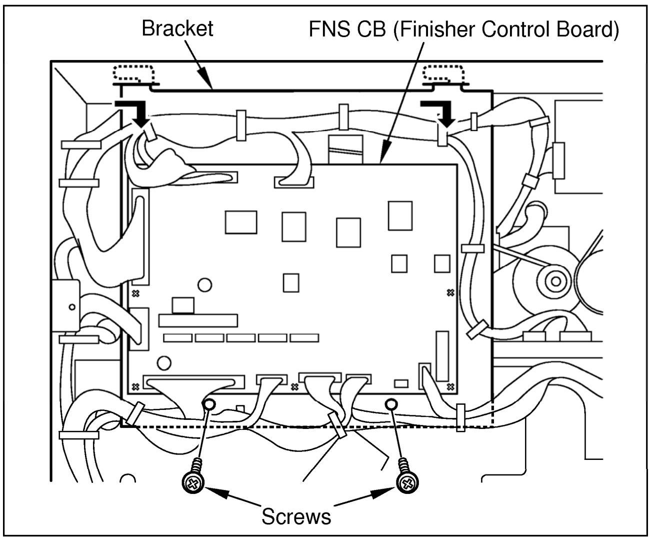
[3] Adjusting the Sub-tray Paper Exit Gate

1. Tools used

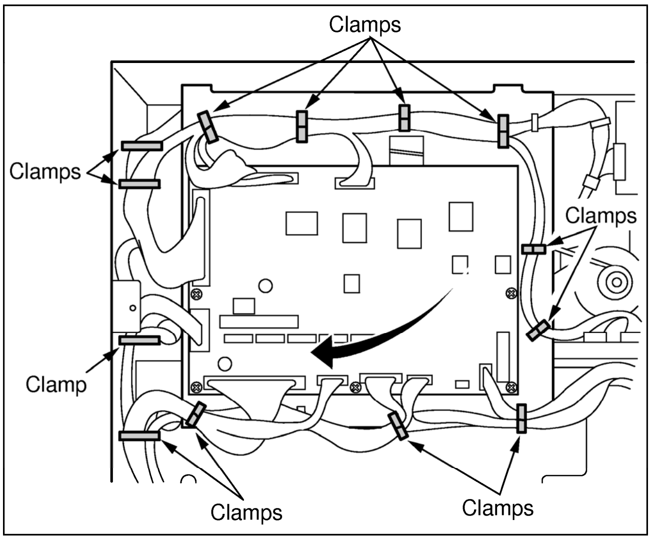
- Phillips-head screwdriver
- Scale

2. Preparation

(1) Remove the 2 set screws holding the FNS CB (FNS control board) in place. Remove the FNS CB together with its bracket.

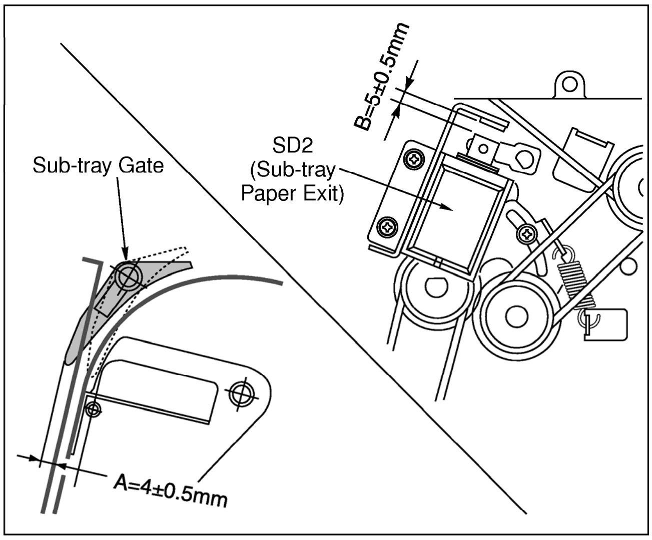

Bracket
FNS CB (Finisher Control Board)
Screws

(2) Remove the wirings from the clamps, and move the FNS CB together with its bracket.


Clamps
Clamps
Clamps
Clamp
Clamps
Clamps

(3) With SD2 (sub-tray paper exit) OFF, measure the gap between the sub-tray gate and the guide plate (indicated by A in the illustration).
Spec value for gap: A = 4 ±0.5mm.

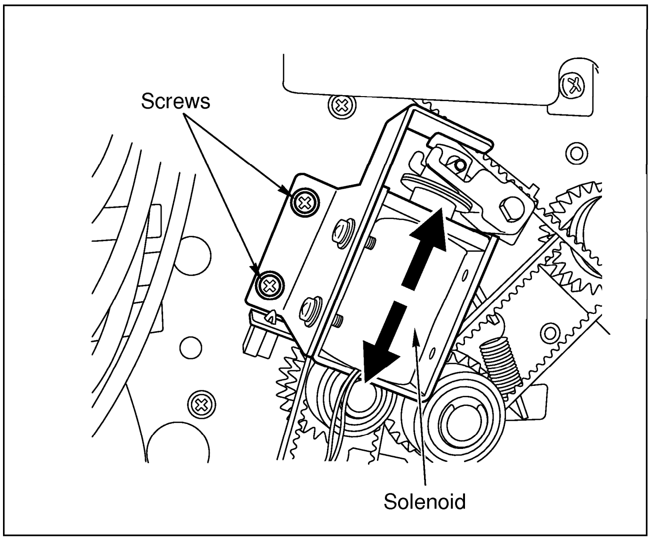
(4) With SD2 ON, measure the gap between the solenoid plunger and the bracket stopper (indicated by B in the illustration).
Spec value for gap: B = 5 ±0.5mm.


B=5±0.5mm
Sub-tray Gate
SD2
(Sub-tray
Paper Exit)
A=4±0.5mm

(5) If either gap is out of spec, carry out adjustment as described below.

3. Adjustment Procedure

(1) Loosen the 2 set screws holding the solenoid in place, and move the solenoid as necessary to adjust.


Screws
Solenoid

(2) Retighten the screws.

(3) Reinstall in opposite sequence to removal.

[4] Adjusting the Paper-Path Switching Gate

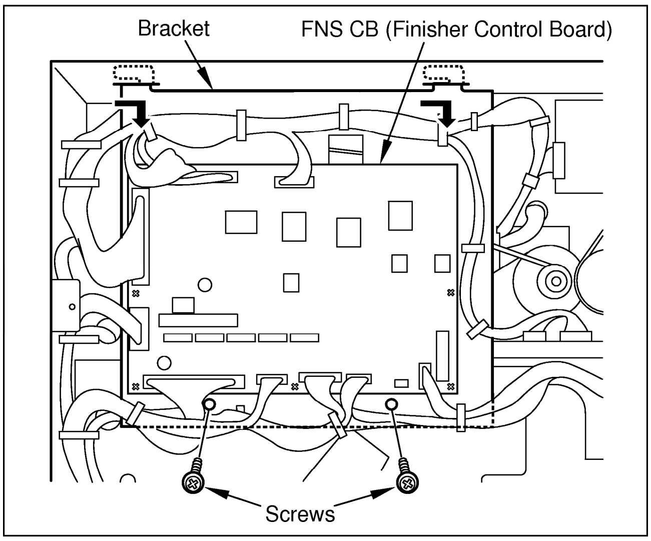
1. Tools used

- Phillips-head screwdriver
- Scale

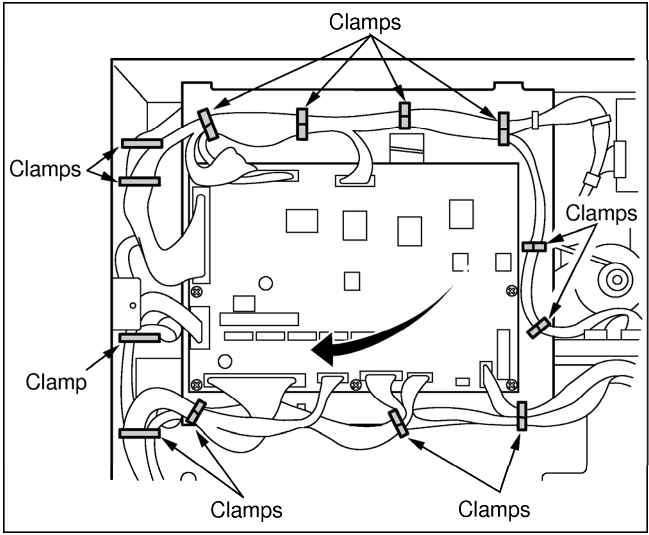
2. Preparation

(1) Remove the following parts.
  - Rear cover
  - Top cover
  - PI-108 (if installed)

(2) Remove the 2 set screws holding the FNS CB (FNS control board) in place. Remove the FNS CB together with its bracket.

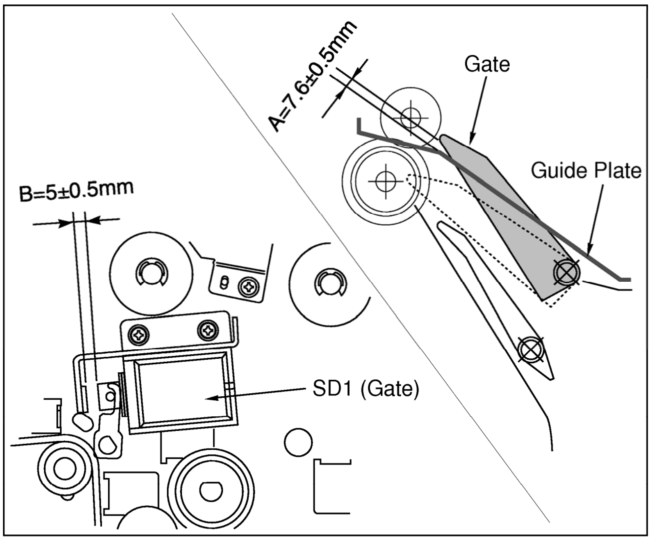

Bracket
FNS CB (Finisher Control Board)
Screws

(3) Remove the wirings from the clamps, and move the FNS CB together with its bracket.


Clamps
Clamps
Clamps
Clamp
Clamps
Clamps

(4) With SD1 (gate) ON, measure the distance between the long gate and the guide plate, indicated by A in the illustration.
Spec value for distance: A = 7.6±0.5mm.

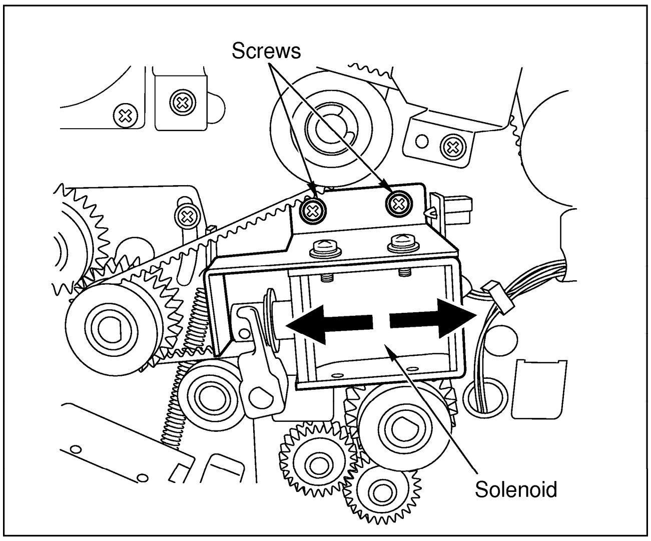
(5) Again with SD1 ON, measure the gap between the solenoid plunger and the bracket stopper (indicated by B in the illustration).
Spec value for gap: B = 5±0.5mm.


A=7.6±0.5mm
Gate
Guide Plate
B=5±0.5mm
SD1 (Gate)

(6) If either measurement is out of spec, carry out adjustment as described below.

3. Adjustment Procedure

(1) Loosen the 2 set screws holding the solenoid in place, and move the solenoid as necessary to adjust.


Screws
Solenoid

(2) Retighten the screws.

(3) Reassemble in the opposite sequence to removal.

[5] Adjusting the By-pass Gate

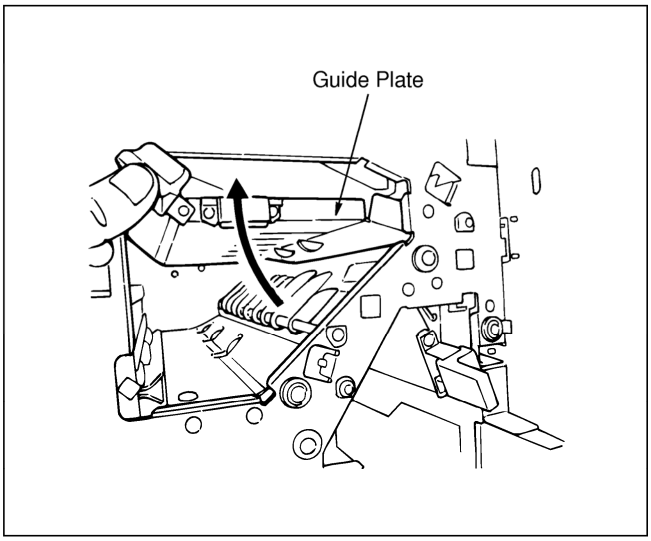
1. Tools used

- Phillips-head screwdriver
- Scale

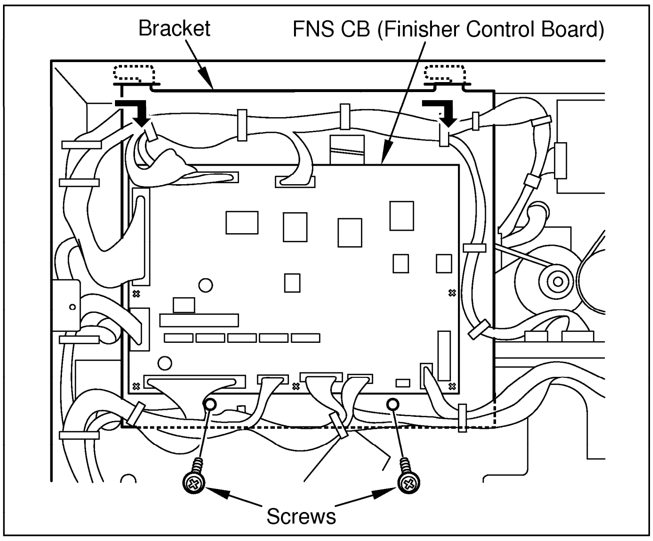
2. Preparation

(1) Remove the rear cover.

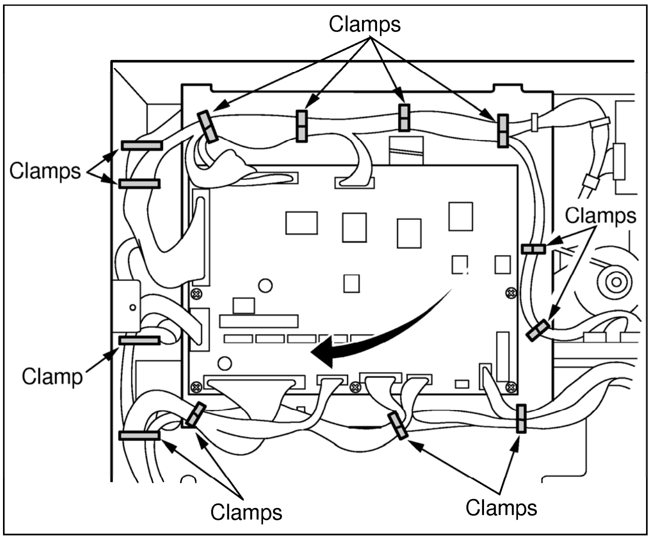
(2) Open the front cover and the guide plate.


Guide Plate

(3) Remove the 2 set screws holding the FNS CB in place. Remove the FNS CB together with its bracket.

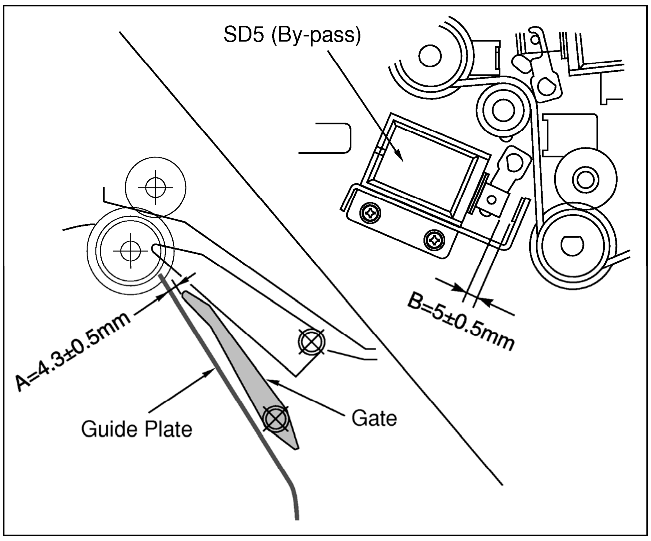

Bracket
FNS CB (Finisher Control Board)
Screws

(4) Remove the wirings from the clamps, and move the FNS CB together with its bracket.


Clamps
Clamps
Clamps
Clamp
Clamps
Clamps

(5) With SD5 (by-pass) OFF, measure the distance between the by-pass gate and the guide plate, indicated by A in the illustration.
Spec value for distance: A = 4.3±0.5mm

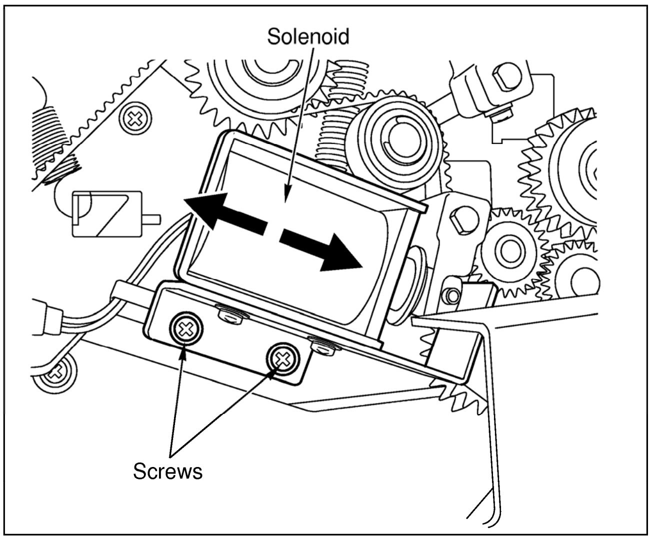
(6) With SD5 ON, measure the gap between the solenoid plunger and the bracket stopper (indicated by B in the illustration).
Spec value for gap: B = 5±0.5mm


SD5 (By-pass)
B=5±0.5mm
A=4.3±0.5mm
Guide Plate
Gate

(7) If either measurement is out of spec, carry out adjustment as described below.

3. Adjustment Procedure

(1) Loosen the 2 set screws holding the solenoid in place, and move the solenoid as necessary to adjust.


Solenoid
Screws

(2) Retighten the screws.

(3) Reassemble in the opposite sequence to removal.

[6] Adjusting the Shift Position

1. Tool used

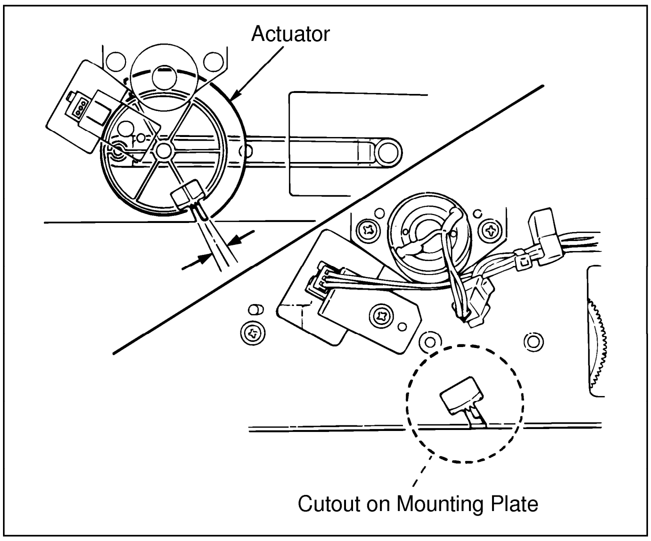
- Phillips-head screwdriver

2. Preparation

(1) Remove the following parts.
- Rear cover
- Top cover
- PI-108 (if installed)

(2) Switch the power OFF → ON → OFF.

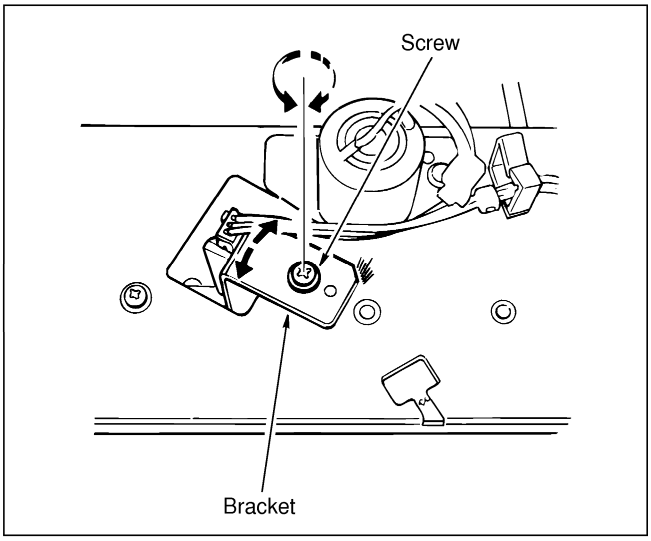
(3) With the roller shift motor (M2) OFF (home position), check that the actuator on PS18 (roller shift HP) is correctly aligned with the cutout on the shift-unit mounting plate.



(4) If the actuator is not correctly aligned with the cutout, carry out adjustment as described below.

3. Adjustment Procedure

(1) Loosen the screw holding the PS18 (roller shift HP) bracket in place, and adjust the bracket position as necessary.



(2) Retighten the screw.

(3) Reassemble in the opposite sequence to removal.

[7] Adjusting Opening/Closing at the Paper Exit

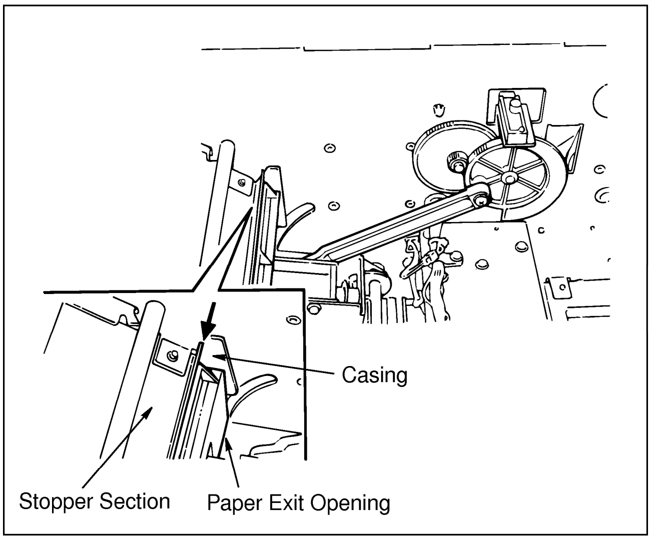
1. Tool used

- Phillips-head screwdriver

2. Preparation

(1) Remove the following parts.
- Rear cover
- Top cover
- PI-108 (if installed)

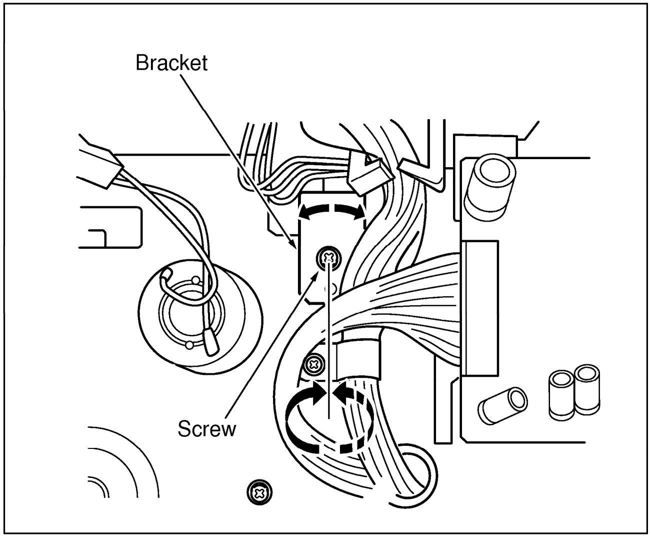
(2) Switch the power OFF → ON → OFF. Then, with the paper exit closed, confirm that the paper exit casing is firmly against the stopper section.



(3) If the casing is not in firm contact with the stopper, carry out adjustment described as follows.

3. Adjustment Procedure

(1) Loosen the set screw holding the PS12 (paper exit-opening detector) bracket in place, and adjust the bracket position as necessary.



(2) Retighten the bracket set screw.

(3) Reassemble in the opposite sequence to removal.

[8] Adjusting the Paper Exit-Opening Solenoid

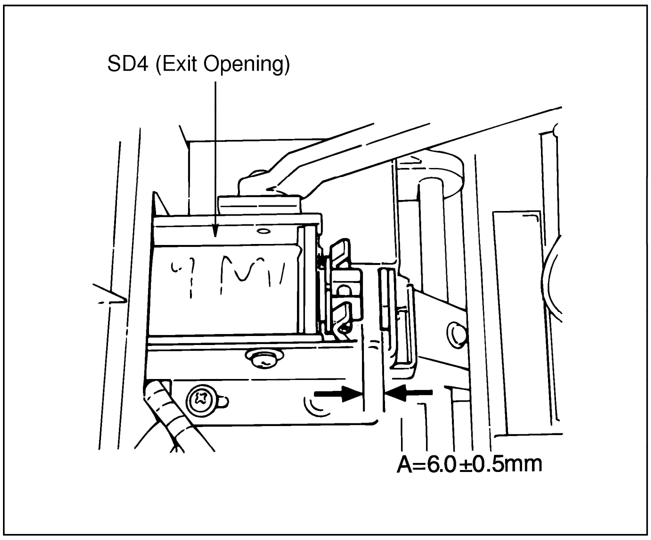
1. Tools used

- Phillips-head screwdriver
- Scale

2. Preparation

(1) Remove the following parts.
- Rear cover
- Top cover
- PI-108 (if installed)

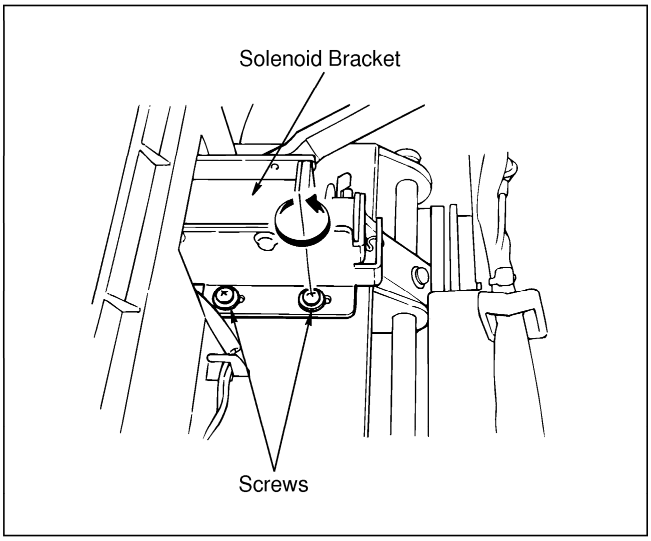
(2) With SD4 (paper exit-opening solenoid) ON, measure the gap between the solenoid plunger and the bracket stopper.
Spec value for gap: A = 6.0 ±0.5mm



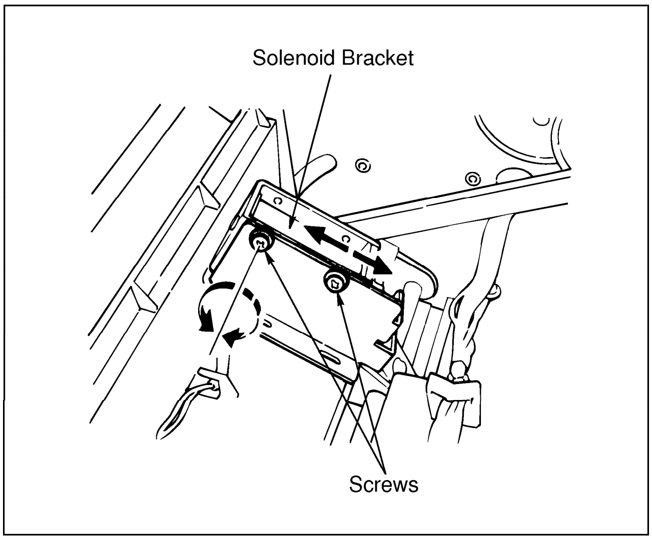
(3) If the gap is out of spec, carry out adjustment describe as follows.

3. Adjustment Procedure

(1) Remove the 2 set screws holding the solenoid bracket in place, and remove the solenoid together with the bracket.



(2) Loosen the 2 screws holding the solenoid to the bracket, and adjust the position of solenoid.



(3) Retighten the 2 solenoid screws, then replace the solenoid and bracket into their original position and screw in the 2 bracket screws.

(4) Reassemble in the opposite sequence to removal.

[9] Adjusting the Paper Exit-Opening Lower Guide Plate

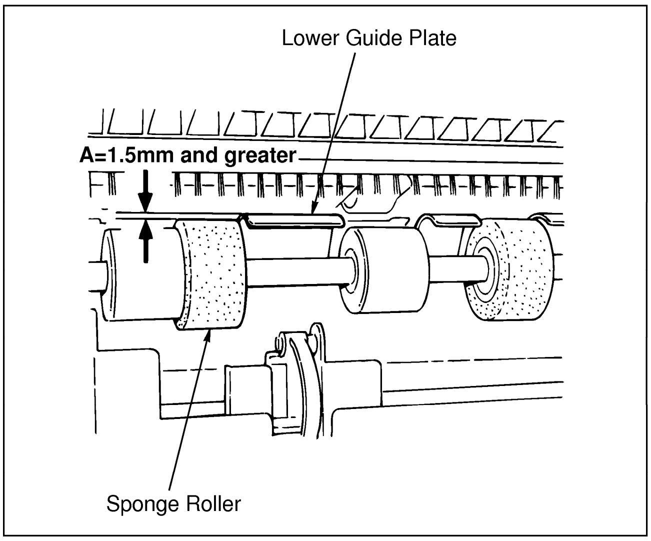
1. Tools used

- Phillips-head screwdriver
- Scale

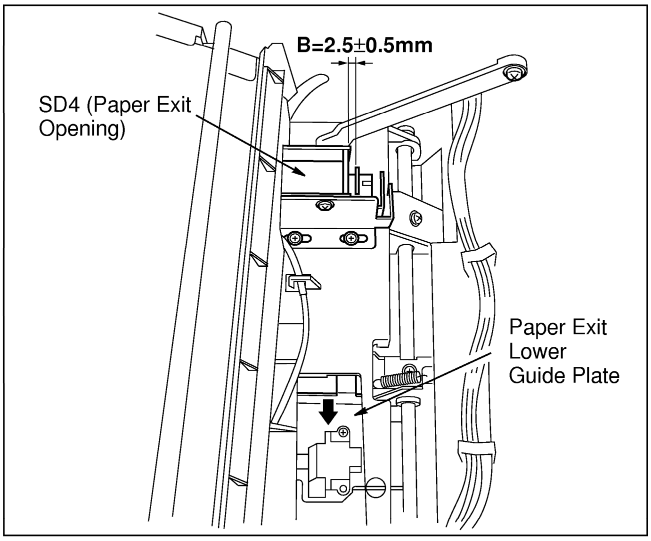
2. Preparation

(1) Remove the following parts.
  - Rear cover
  - Top cover
  - PI-108 (if installed)

(2) With SD4 (paper exit-opening solenoid) OFF, confirm that the paper exit-opening lower guide plate is a sufficient distance (distance A) higher than the sponge rollers.
Spec value: A = 1.5mm and greater


Lower Guide Plate
A=1.5mm and greater
Sponge Roller

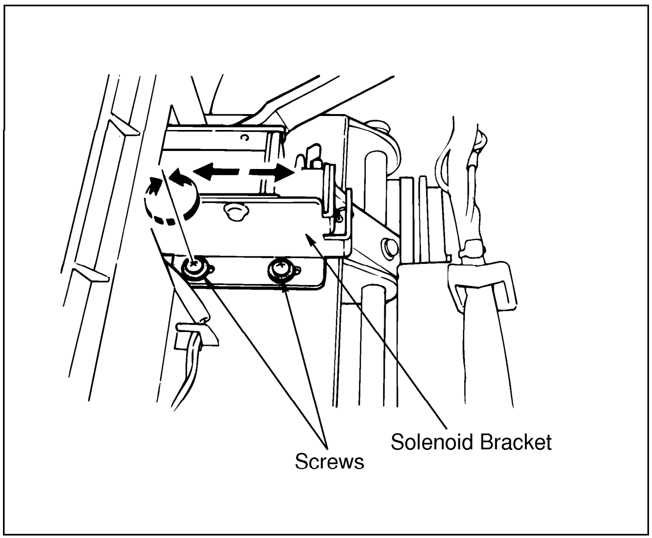
(3) Hold down the paper exit-opening guide plate with your hand so that the paper exit roller makes contact, and check that the remaining stroke for solenoid SD4 (distance B) is within spec.
Spec value: B = 2.5±0.5mm


B=2.5±0.5mm
SD4 (Paper Exit Opening)
Paper Exit Lower Guide Plate

(4) If either measurement is out of spec, carry out adjustment as described below.

3. Adjustment Procedure

(1) Loosen the 2 set screws holding the solenoid bracket in place, and adjust the position of the bracket so that distances A and B are within spec.


Solenoid Bracket
Screws

(2) Retighten the 2 bracket set screws.
(3) Reassemble in the reverse sequence to removal.

[10] Adjusting the Tension of the Stacker Paper Exit Belt

1. Tools used

- Phillips-head screwdriver
- Tension gauge or spring balance

2. Preparation

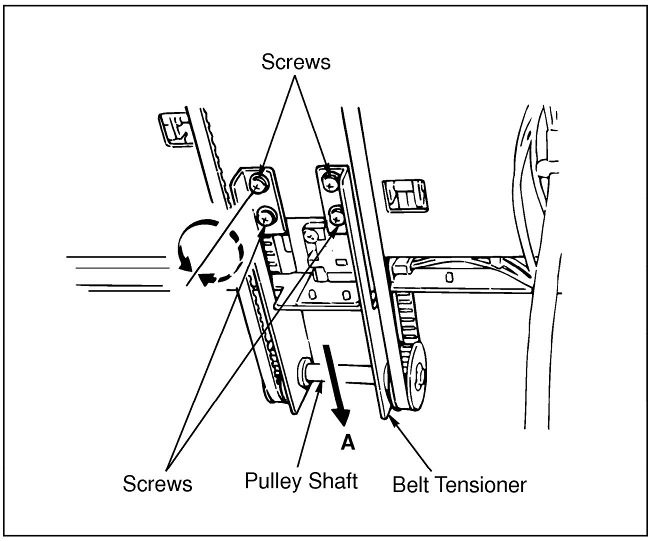
(1) If the belt tensioner has been loosened as a result of belt replacement or for some other reason, adjust as described below.

3. Adjustment Procedure

(1) Loosen the 4 set screws (see illustration).

(2) Using a tension gauge or spring balance, pull the belt-tensioner pulley shaft so that tension A is at the value indicated below. Maintain this tension while retightening the screws.

Spec value for tension: A = 2kg



(3) Reassmble in the opposite sequence to removal.

[11] Adjusting the Mount Location of the Upper Alignment Plates

1. Tools used

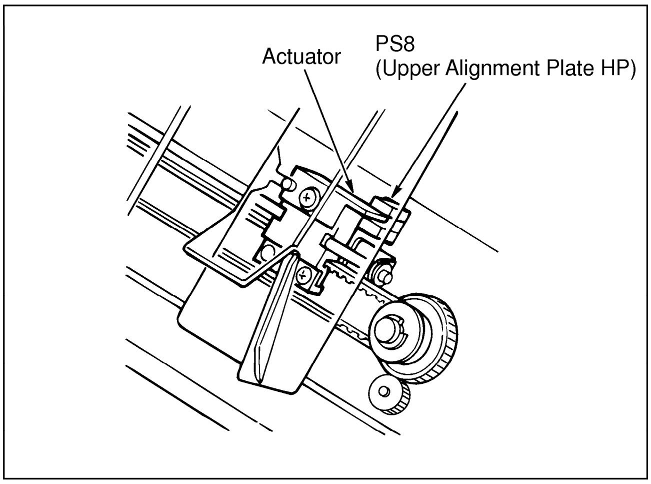
- Phillips-head screwdriver
- Scale

2. Preparation

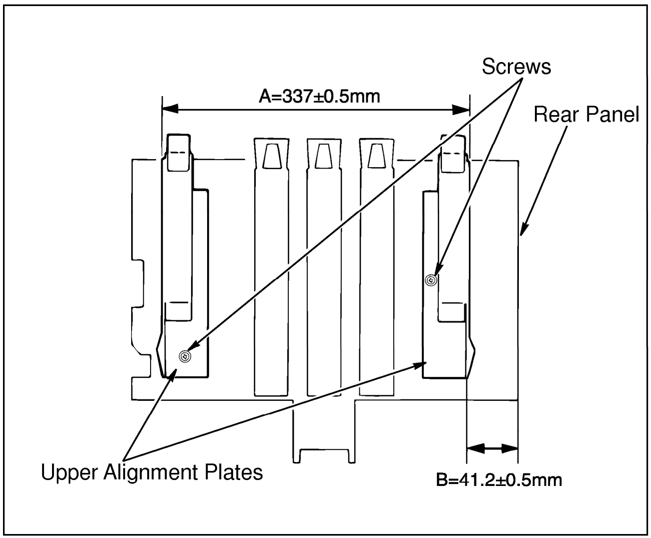
(1) Open the front cover and pull out the stacker/stapler unit.

3. Adjustment Procedure

(1) Move the upper alignment plates into home position. (Move so that the actuator on the upper-alignment-plate drive belt is at PS8 (upper-alignment-plate HP).



(2) Loosen the 2 set screws fixing the upper alignment plates in place (one screw on each plate), and adjust the plates so that distances A and B are within specification.
Spec values: A = 337±0.5mm
B = 41.2±0.5mm


Screws
A=337±0.5mm
Rear Panel
Upper Alignment Plates
B=41.2±0.5mm

(3) Retighten the screws.

[12] Adjusting the Tension of the Upper-Alignment-Plate Drive Timing Belt

1. Tools used

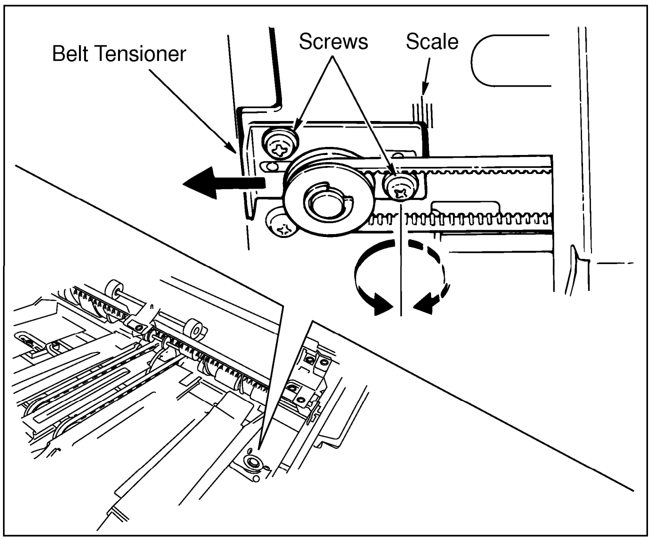
- Phillips-head screwdriver

2. Preparation

(1) If the upper-alignment-plate drive belt tensioner has been loosened as a result of belt replacement or for some other reason, adjust as described below.

3. Adjustment Procedure

(1) Loosen the 2 set screws (see illustration).
(2) Move the belt tensioner so that the end is aligned with the center mark on the scale, and retighten the screws.


Belt Tensioner
Screws
Scale

[13] Adjusting the Mount Location of the Lower Alignment Plates (FS-108BM only)

1. Tool used

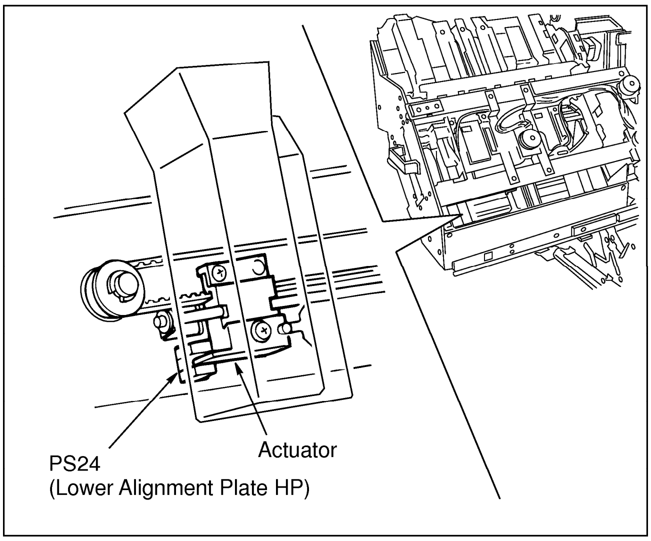
- Phillips-head screwdriver

2. Preparation

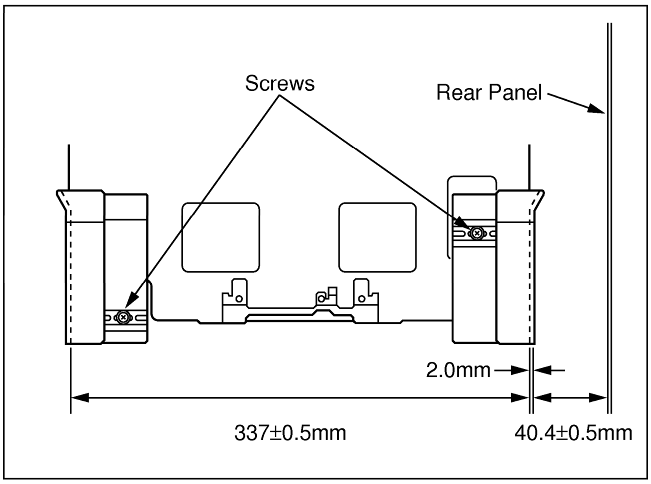
(1) Open the front cover and pull out the stacker/stapler unit.

3. Adjustment Procedure

(1) Move the lower alignment plates into home position. (Move so that the actuator on the lower-alignment-plate drive belt is at PS24 (lower-alignment-plate HP).


Actuator
PS24
(Lower Alignment Plate HP)

(2) Loosen the 2 set screws fixing the lower alignment plates in place (one screw on each plate), and adjust the plates so that distances A and B are within specification.
Spec values: A = 337±0.5mm
B = 40.4±0.5mm


Screws
Rear Panel
2.0mm
337±0.5mm
40.4±0.5mm

(3) Retighten the screws.

[14] Adjusting the Tension of the Lower-Alignment-Plate Drive Timing Belt (FS-108BM only)

1. Tool used

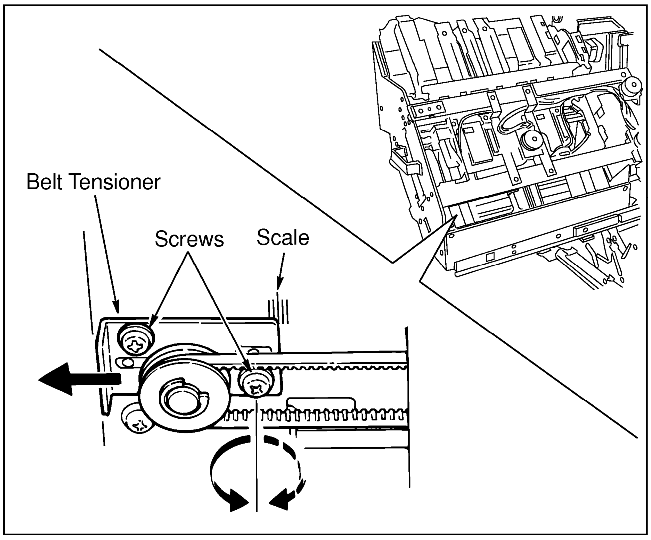
- Phillips-head screwdriver

2. Preparation

(1) If the lower-alignment-plate drive belt tensioner has been loosened as a result of belt replacement or for some other reason, adjust as described below.

3. Adjustment Procedure

(1) Loosen the 2 set screws (see illustration).
(2) Move the belt tensioner so that the end is aligned with the center mark on the scale, and retighten the screws.



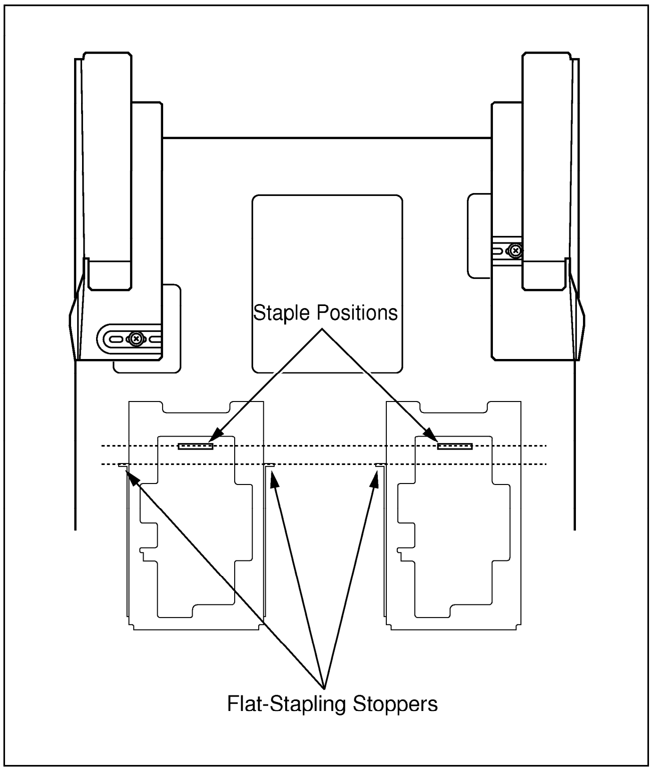
[15] Adjusting the Stapling Position (Flat Stapling)

1. Tools used

- Phillips-head screwdriver
- Scale

2. Preparation

(1) Check whether the virtual line running between the stoppers is parallel to the virtual line between the staplers.

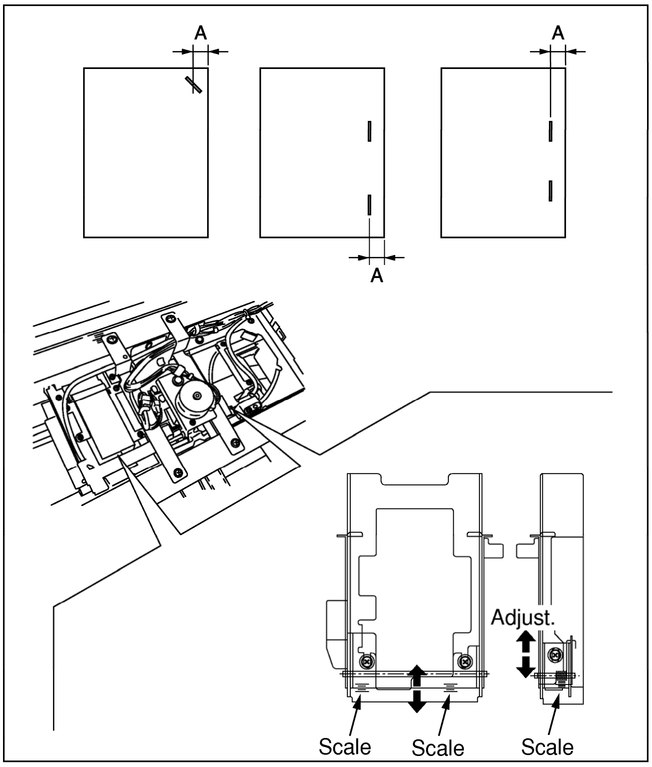


(2) If the lines are not parallel or if you need to change the stapling position, carry out adjustment as described below.

3. Adjustment Procedure

(1) Loosen the 3 set screws holding the flat-stapling stopper bracket in place, and position the bracket so that distance A is within the specification range.

Spec range: A = 5.5 to 11.5mm
(initial value = 8.5mm)



(2) Hold paper against the stoppers and confirm that all three stoppers are in alignment.

(3) Execute stapling to confirm that the stopper line and stapler line are parallel.

[16] Adjusting the Stapler Vertical Positioning

1. Tools used

- Phillips-head screwdriver
- Jig

2. Preparation

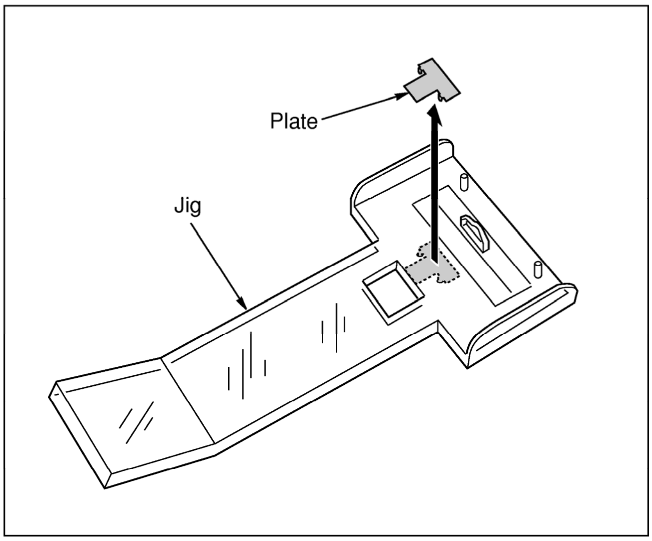
(1) When replacing or reinstalling a stapler or clincher, adjust the vertical alignment as described below.

3. Adjustment Procedure

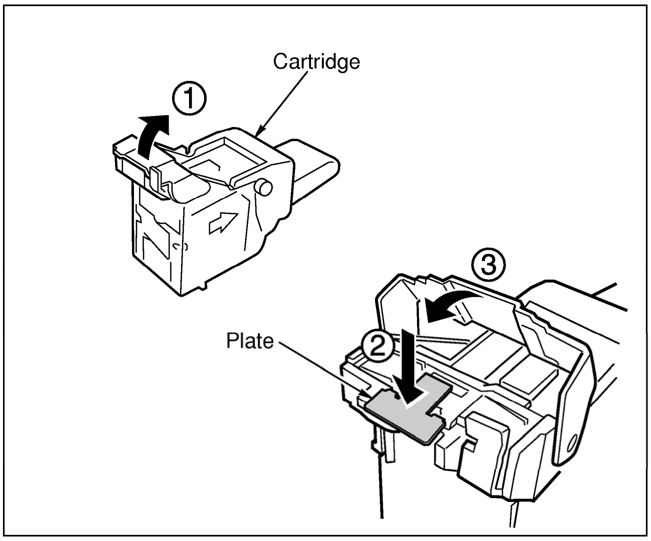
(1) If installing a stapler, mount the stapler into place.

(2) Loosely fasten the clincher in place with 4 set screws. (If the clincher is already fastened in place, loosen the 4 screws so that you can adjust it.)

(3) Remove the plate from the jig.

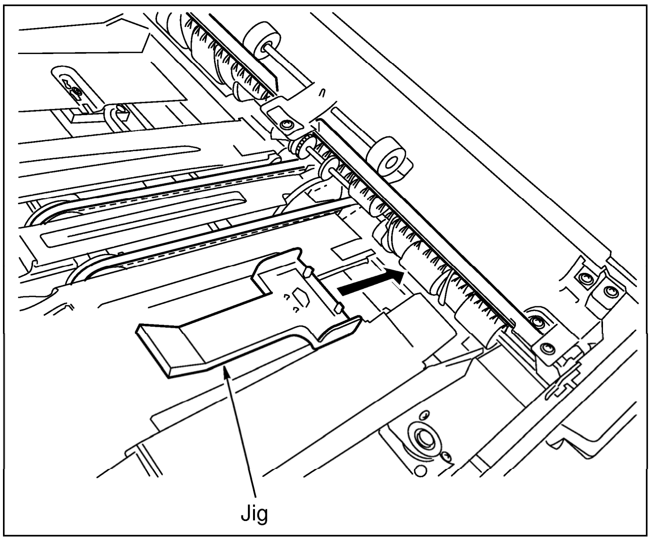


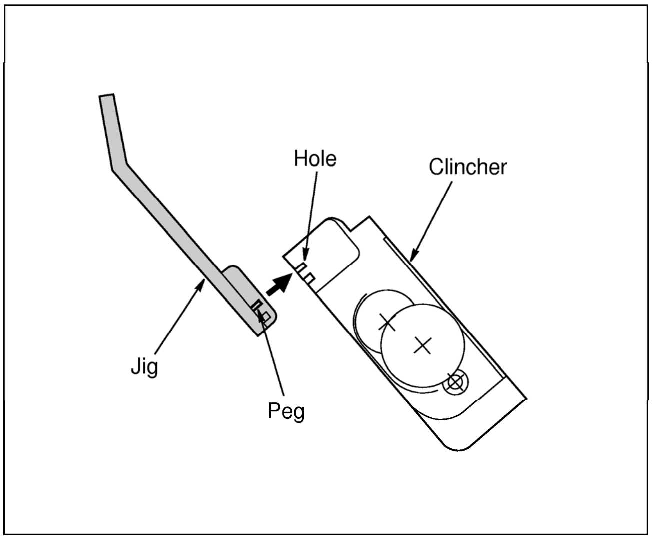
(4) Remove the cartridge, and install the plate that you took from the jig.


Cartridge
①
③
Plate
②

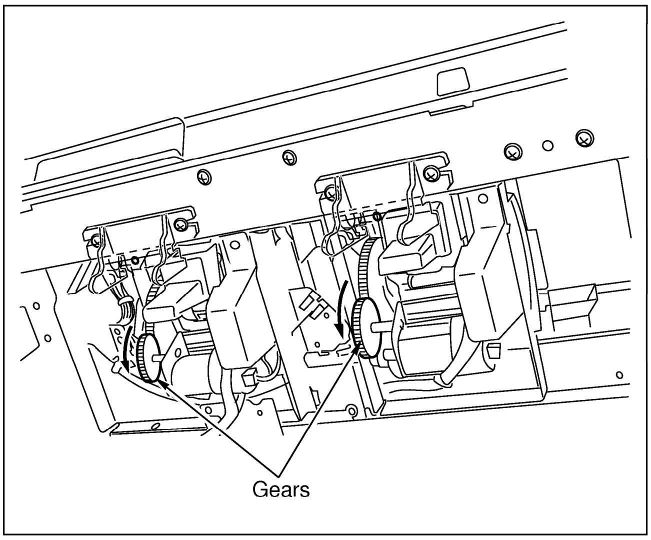
(5) Reinstall the cartridge.

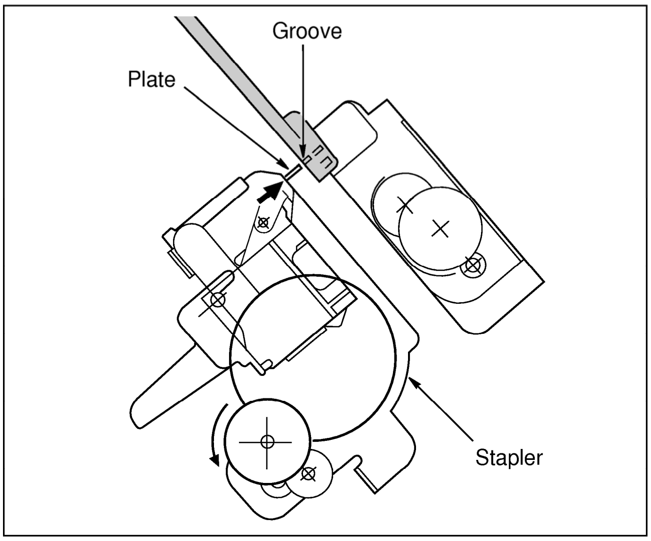
(6) Fit the two pegs on the jig into the corresponding holes in the clincher.




Hole
Clincher
Jig
Peg

(7) Rotate the stapler gears downward. Adjust the clincher position so that the plate on the cartridge fits smoothly into the groove on the jig.





(8) With the plate in the groove, tighten the 4 clincher set screws to fasten the clincher into place.
(9) Rotate the stapler gears back upwards, and remove the jig.
(10) Remove the plate from the cartridge and set it back into the jig.
(11) Reinstall the cartridge and check that stapling operates correctly.

[17] Adjusting the Staple Orientation (Stapling-and-Folding) (FS-108BM only)

1. Tool used

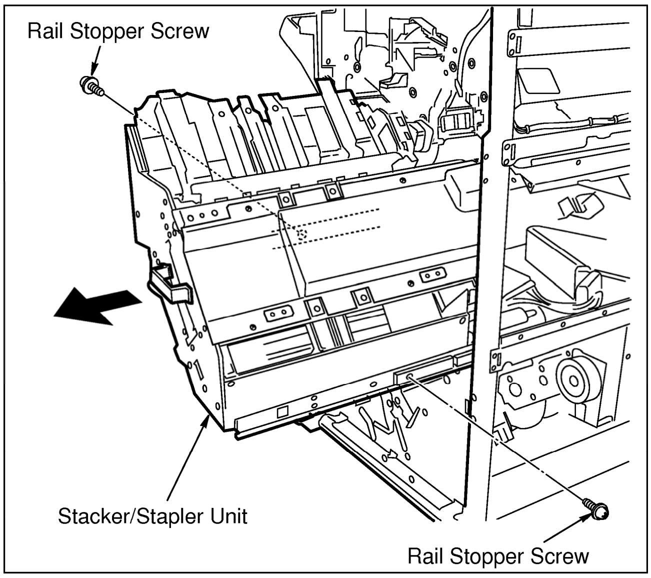
- Phillips-head screwdriver

2. Preparation

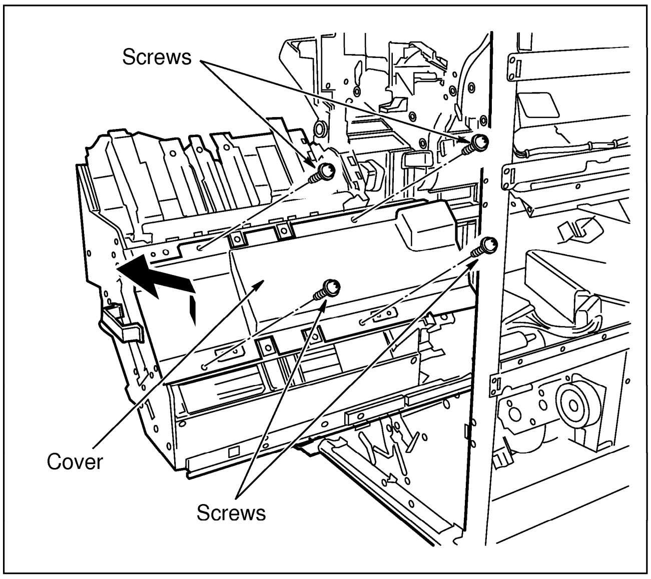
(1) If the staple orientation is not parallel with the paper edge, adjust as described below.

3. Adjustment Procedure

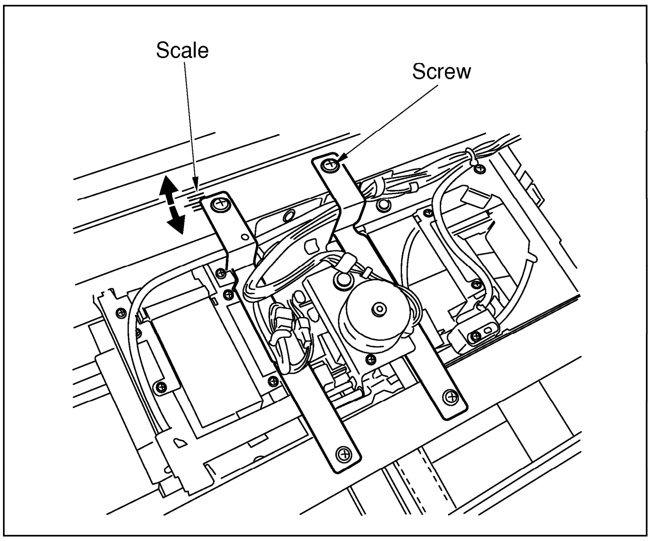
(1) Open the front cover and pull the stacker/stapler unit part of the way out..
(2) Remove the 2 rail-stopper screws. Then pull the stacker/stapler unit all of the way out.



(3) Remove the 4 set screws holding the cover in place, and remove the cover.



(4) Loosen 4 more set screws.
(5) Rotate the stapling-and-folding stopper assembly as necessary to adjust the alignment.



(6) Retighten the screws.

[18] Adjusting the Staple Position (Stapling-and-Folding) (FS-108BM only)

1. Tool used

- Scale

2. Preparation

(1) Connect the finisher to the main body.
(2) Load paper of the appropriate size into the main body.
(3) Before proceeding, be sure that you have correctly adjusted the angle of the stapling-and-folding stopper.
(4) For each paper size, confirm that is stapling is positioned correctly at the center of the sheets.
(5) If stapling is off-center, adjust as described below.

3. Adjustment Procedure

(1) Hold down keys [3] and [6] on the copier's numeric keypad while setting the main switch ON. The copier will enter finisher-adjustment mode.
(2) Select [[6] Finisher Adjust] at the copier display.
(3) Select [Copy Screen] at the copier display. The display switches to the Copy screen.
(4) Take a staple-and-fold sample using the paper size that you want to adjust for.
(5) Return to the adjustment screen and select [[1] Stapling-and-folding stopper adjust].
(6) Select the size for adjustment by pressing the up or down arrow button on the display as necessary.
(7) Enter the adjustment value using the [+←→–] button or the numeric keypad. (0.1mm/step)
(8) Press the [Set] button to register the adjustment.
(9) Return to the Copy screen and take another sample. Check that the discrepancy is within the limit.
(10) Repeat the above adjustment procedure for other paper sizes.

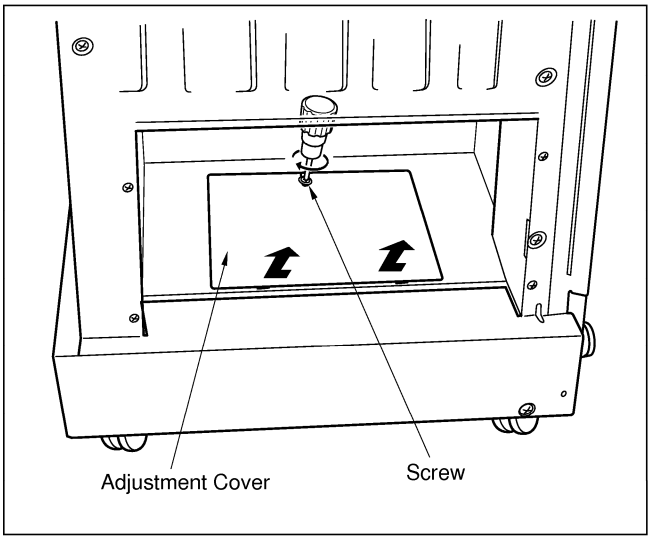
[19] Adjusting the Angle of the Folding Stopper (FS-108BM only)

1. Tools used

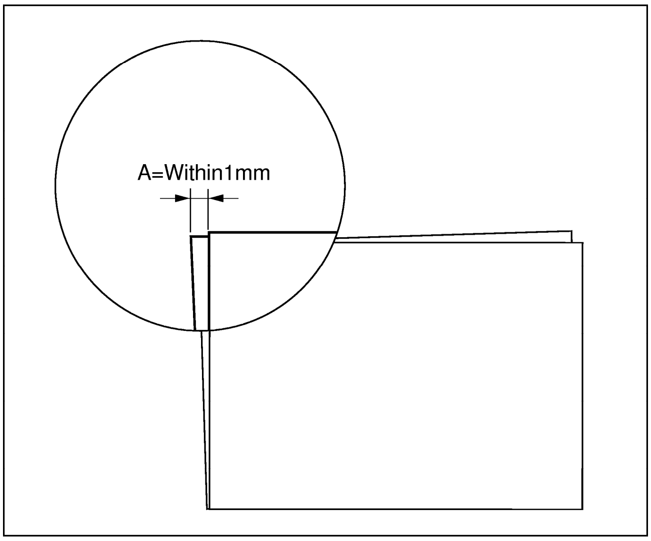
- Phillips-head screwdriver
- Phillips-head stubby screwdriver

2. Preparation

(1) Connect the finisher to the main body.
(2) Load A3 paper into the main body.
(3) Remove the paper exit-guide-plate adjustment cover.



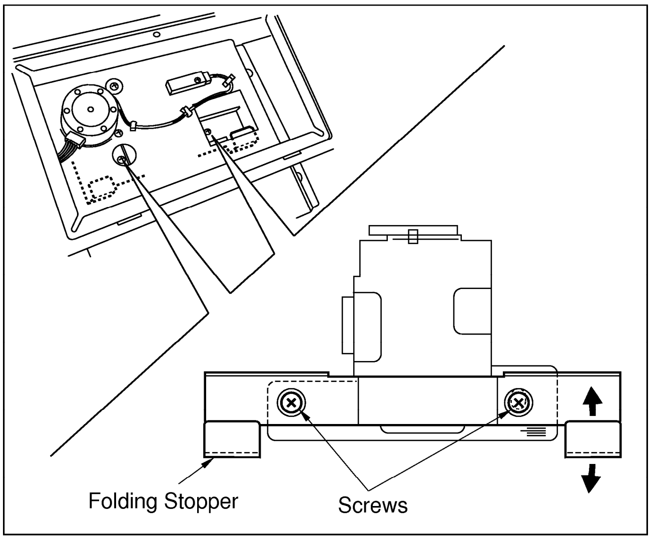
(4) Check whether the following conditions hold.
- Check that the fold line (the folding stopper) is perpendicular to the conveyance direction.
- Check that the fold side discrepancy (for A3 paper) is within the limit.
  Limit: A = 1mm



(5) If either or both of the above conditions does not hold, adjust as described below.

3. Adjustment Procedure

(1) Take a fold sample using A3 paper.
(2) Check the discrepancy along the folded set's trailing edge, and use this information to judge the direction and amount by which the stopper angle must be corrected.
(3) Loosen the 2 front set screws holding the stopper in place, and adjust the stopper angle by rotating around the rear screw.



(4) Retighten the 2 front screws.
(5) Take another sample and check the discrepancy.
(6) Repeat steps (3) and (4) until the discrepancy is within the specified limit.
(7) Replace the adjustment cover.

[20] Adjusting the Folding-Stopper Positions (FS-108BM only)

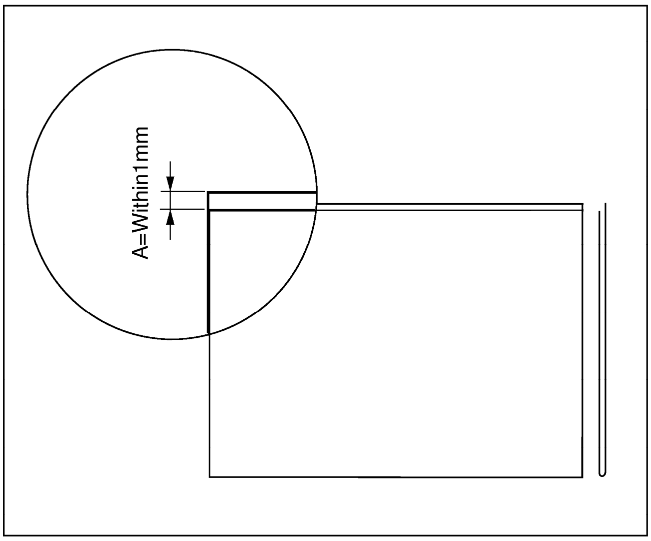
1. Tool used

- Scale

2. Preparation

(1) Connect the finisher to the main body.
(2) Load paper of the appropriate size into the main body.
(3) Before proceeding, be sure that you have correctly adjusted the angle of the folding stopper.
(4) Check whether the following conditions hold.
  - For each paper size: Paper is correctly folded at the center.
  - For each paper size: Discrepancy along the trailing edge of the folded paper is within the limit.

Limit: A=1mm



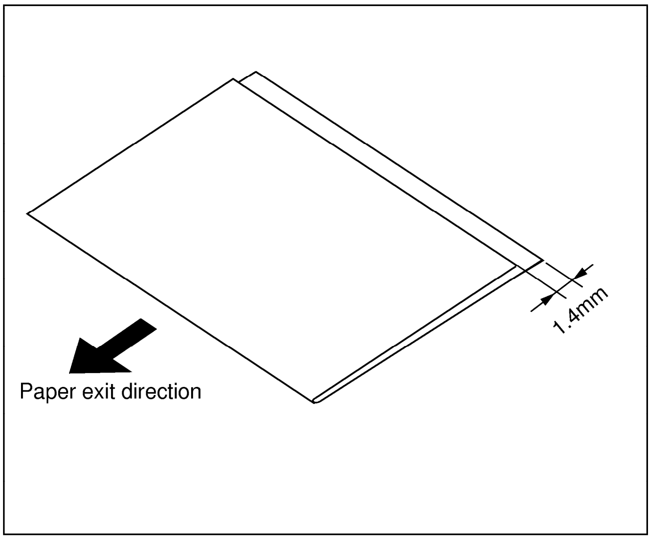
(5) If either or both of the above conditions does not hold, adjust as described below.

3. Adjustment Procedure

(1) Hold down keys [3] and [6] on the copier's numeric keypad while setting the main switch ON. The copier will enter finisher-adjustment mode.
(2) Select [[6] Finisher Adjust] at the copier display.
(3) Select [Copy Screen] at the copier display. The display switches to the Copy screen.
(4) Take a fold sample using the paper size that you want to adjust for.
(5) Return to the adjustment screen and select [[2] Folding stopper adjust].
(6) Select the size for adjustment by pressing the up or down arrow button on the display as necessary.
(7) Enter the adjustment value [=half the value of the discrepancy along the folded set's trailing edge] using the [+←→–] button or the numeric keypad. (0.1mm/step)
If the lower pages are jutting out past the upper pages, the fold is too much to the "+" side; correct by adjusting to the "–" side. If the upper pages are jutting out, the fold is too much to the "–" side; correct by adjusting to the "+" side.
(8) Press the [Set] button to register the adjustment.
(9) Return to the Copy screen and take another sample. Check that the discrepancy is within the limit.
(10) Repeat the above adjustment procedure for other paper sizes.

4. Example

(1) Assume that at time of ejection the lower pages are extending out 1.4mm relative to the upper pages.



(2) Since the lower pages are jutting out, the discrepancy is on the "+" side. Correct by entering an adjustment of [-7].

[21] Adjusting the Tension of the Stapler-Movement Timing Belt

1. Tools used

- Phillips-head screwdriver
- Tension gauge or spring balance

2. Preparation

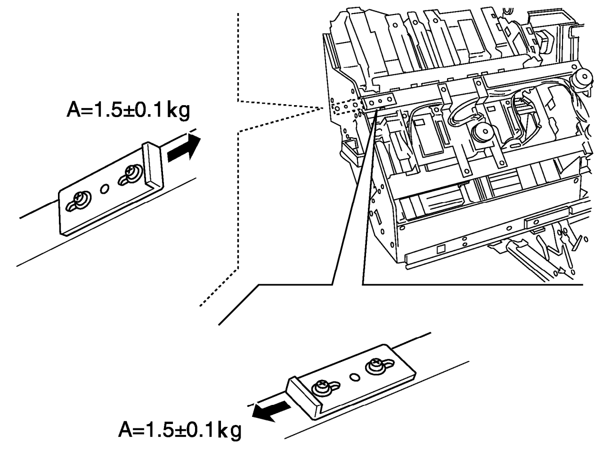
(1) If the belt tensioner has become loose as a result of belt replacement or for some other reason, adjust as described below.

3. Adjustment Procedure

(1) Loosen the 2 screws holding the tensioner in place.

(2) Using a tension gauge or spring balance, pull the belt-tensioner so that tension A is at the value indicated below. Maintain this tension while retightening the screws.

Spec value for tension: A = 1.5±0.5kg



[22] Adjusting the Tension of the Stapler-Rotation Timing Belt

1. Tools used

- Phillips-head screwdriver
- Tension gauge or spring balance

2. Preparation

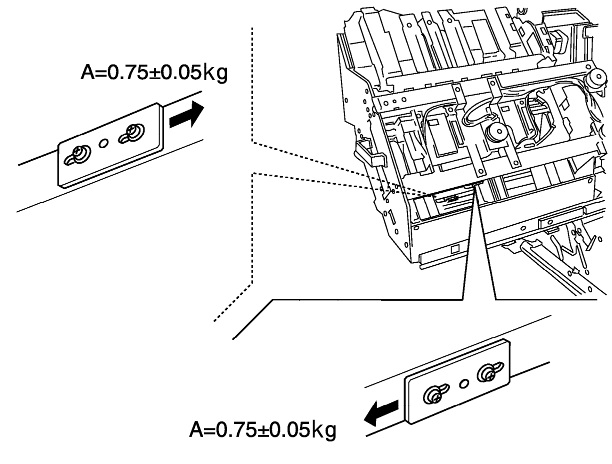
(1) If the belt tensioner has been loosened as a result of belt replacement or for some other reason, adjust as described below.

3. Adjustment Procedure

(1) Loosen the 2 screws holding the tensioner in place.

(2) Using a tension gauge or spring balance, pull the belt-tensioner so that tension A is at the value indicated below. Maintain this tension while retightening the screws.

Spec value for tension: A = 0.75 ±0.05kg



[23] Adjusting the Folding Force (FS-108BM only)

1. Preparation

(1) If necessary, you can change the force of the folding and pressure rollers as described below.

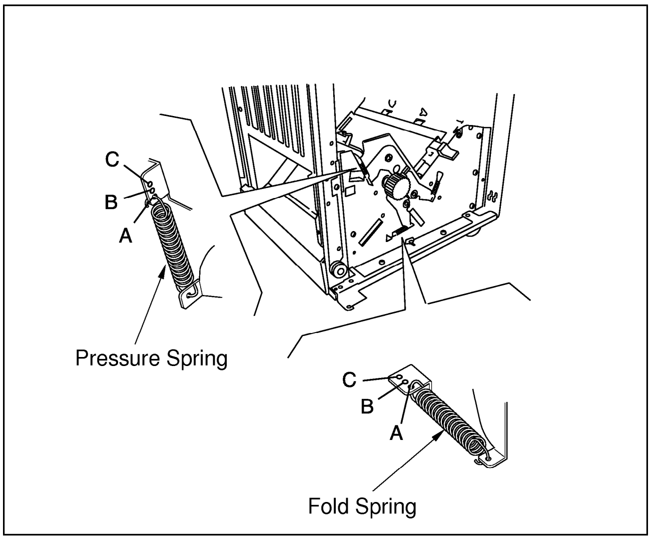
CAUTION: If changing the forces, be sure to make the same change for all rollers at the same time.

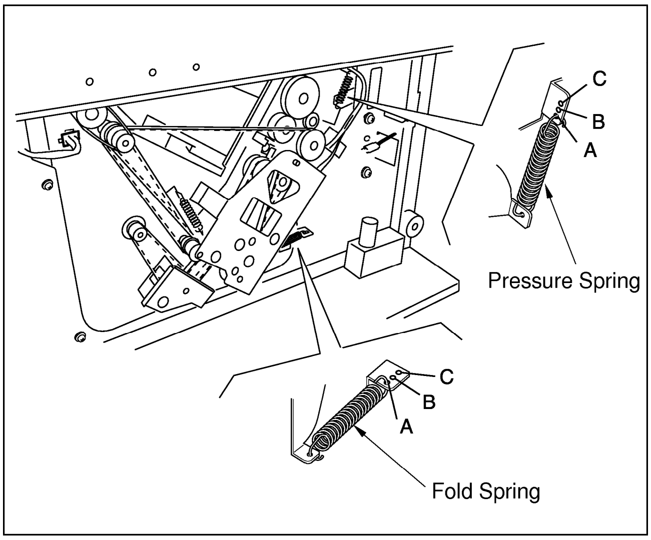
2. Adjustment Procedure

(1) Set the springs as illustrated below; a pressure spring on the folding roller, and a fold spring on the pressure roller.

Force: If A = 8.5kgf
If B = 11.4kgf
If C = 14.4kgf

CAUTION: Be sure to attach the springs into like-labeled holes (either A, or B, or C).

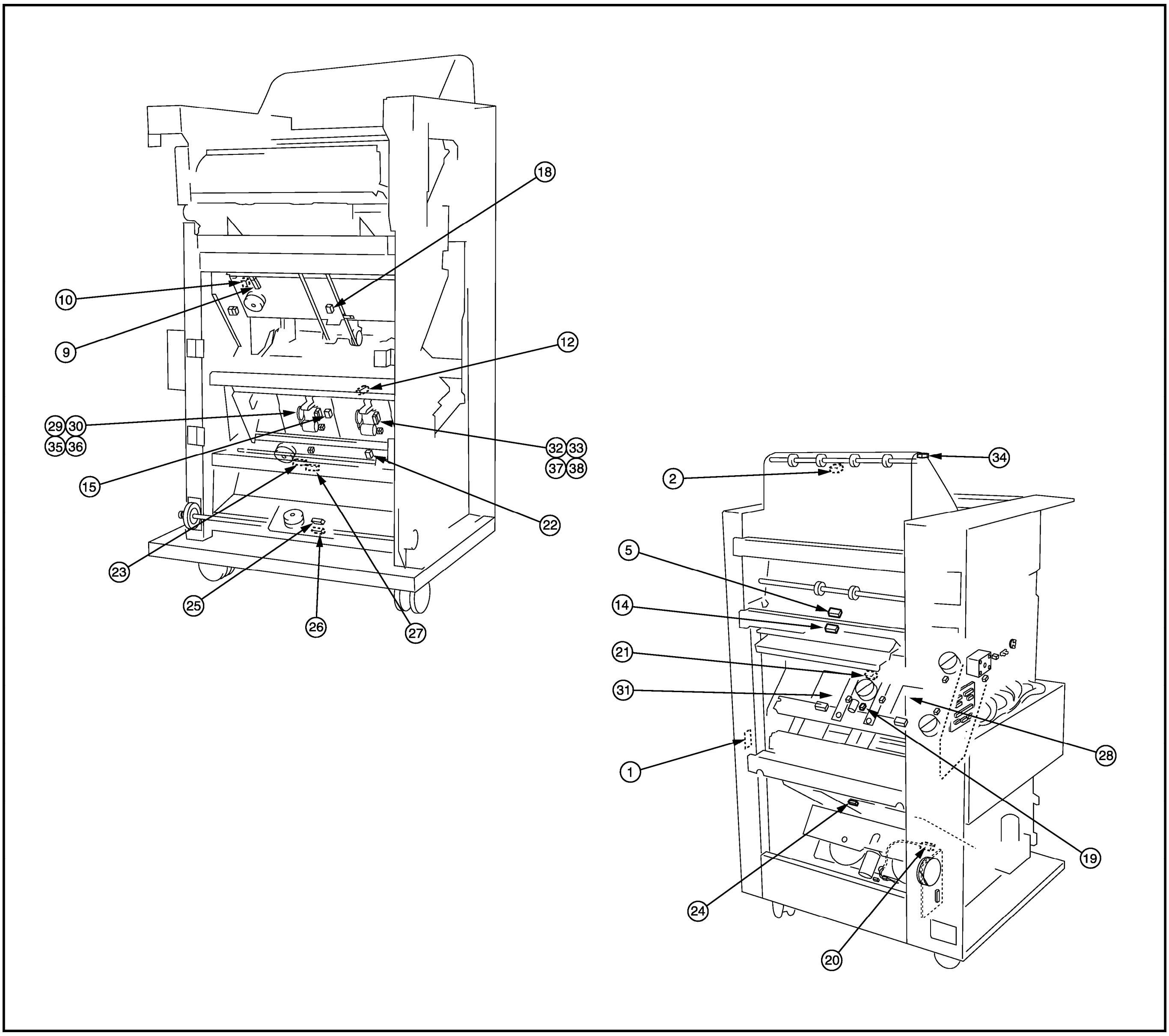

C
B
A
Pressure Spring
C
B
A
Fold Spring


C
B
A
Pressure Spring
C
B
A
Fold Spring

2

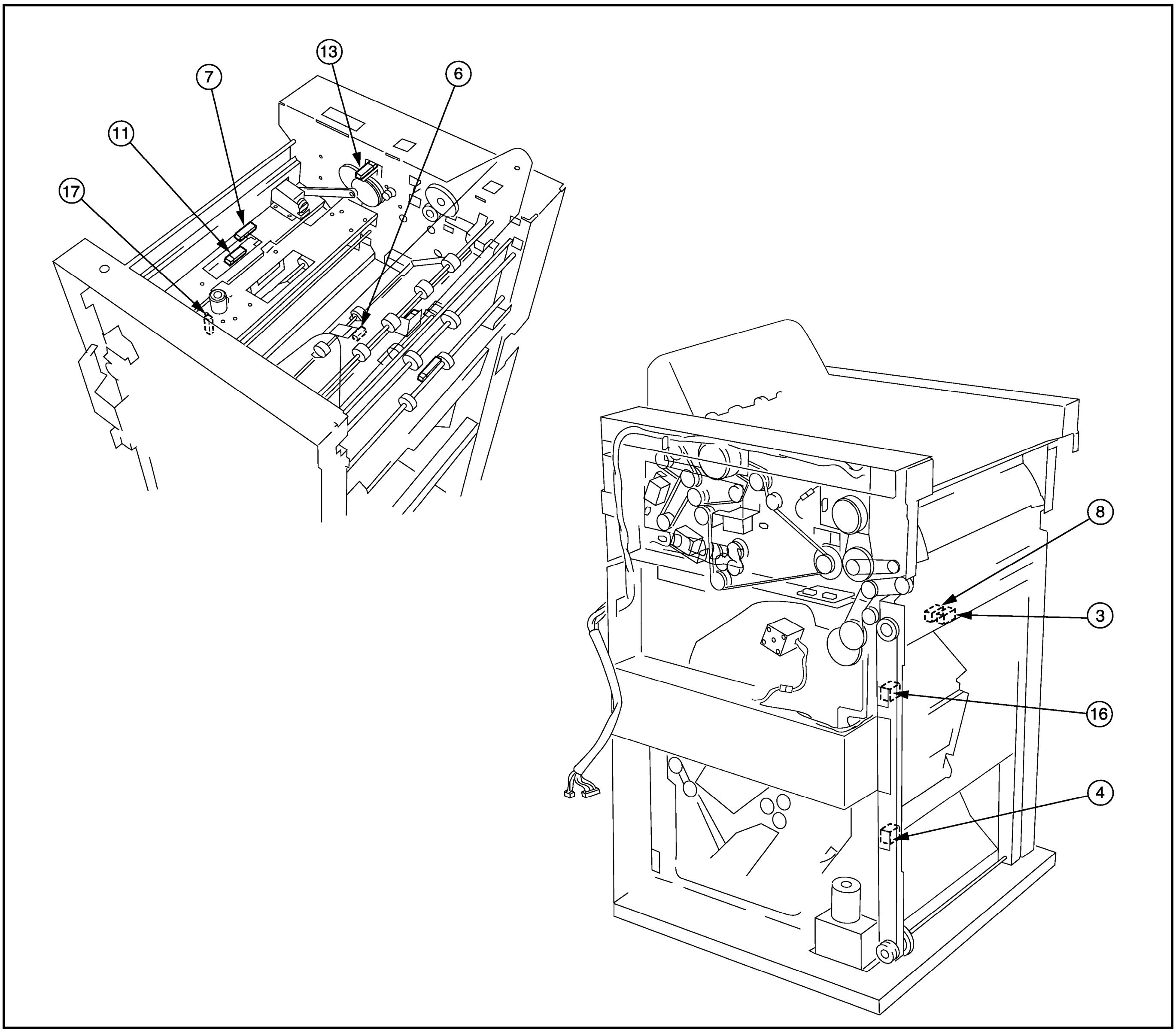
DIAGRAM

FS-108/FS-108BM ELECTRICAL PARTS LAYOUT DRAWING

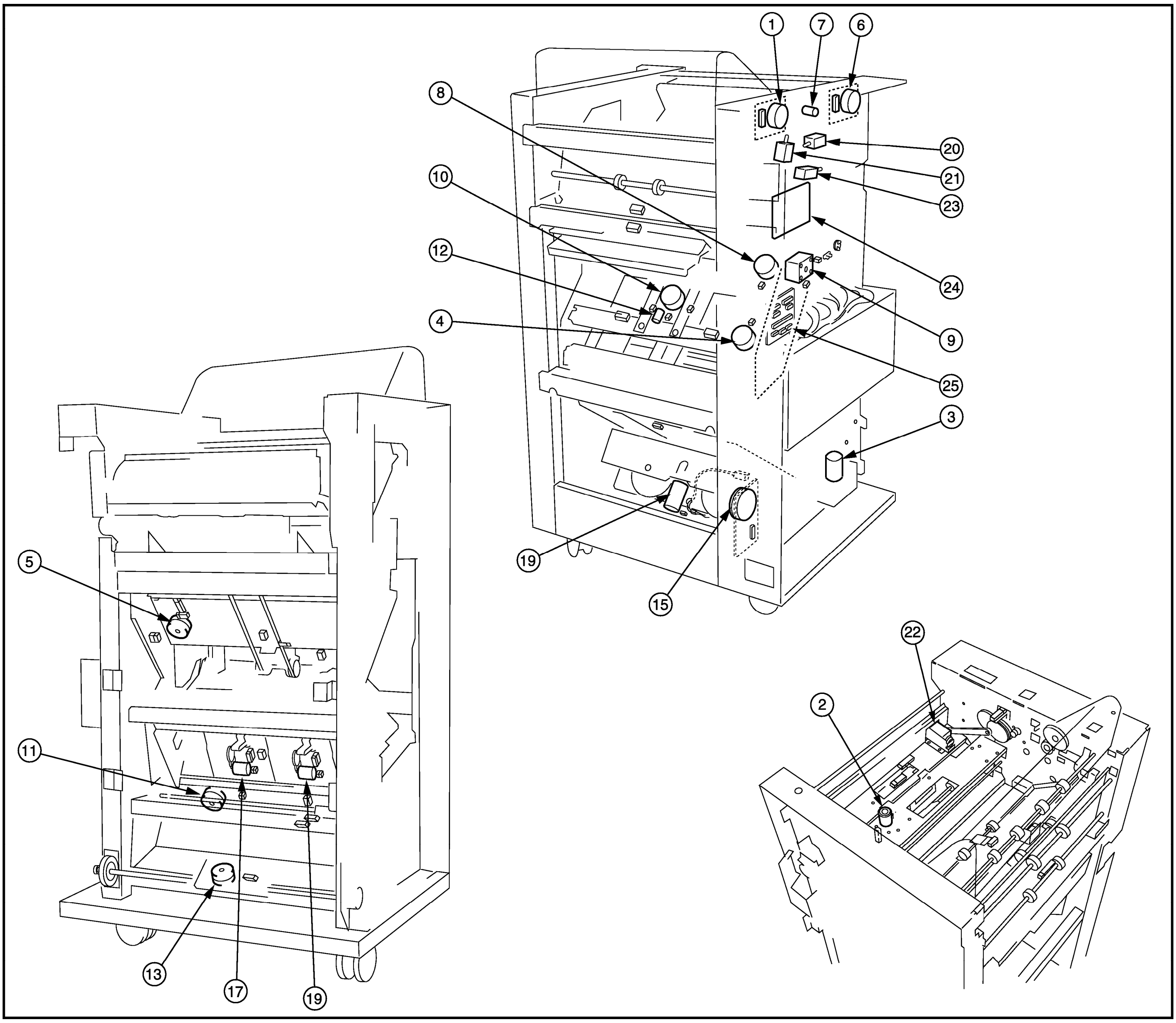


1. Switches and Sensors

①	MS1	Interlock
②	PS1	Sub-tray paper exit PS
③	PS2	Tray upper-limit PS
④	PS3	Tray lower-limit PS
⑤	PS4	FIN entrance passage PS
⑥	PS5	Stacker conveyance passage PS
⑦	PS6	Paper exit-1 PS
⑧	PS7	Staple paper exit upper-limit PS
⑨	PS8	Alignment-plate/upper HP PS
⑩	PS9	Paper exit-belt HP PS
⑪	PS10	Paper exit-2 PS
⑫	PS11	Stapler-movement HP PS
⑬	PS12	Paper exit-opening PS
⑭	PS13	Entrance paper detection PS
⑮	PS14	Stapler-rotation HP PS
⑯	PS15	Tray no-paper detection PS
⑰	PS18	Roller-shift HP PS
⑱	PS20	Stacker no-paper detection PS
⑲	PS21	Stapling and folding stopper-release-motor HP PS
⑳	PS22	Folding-knife HP PS
㉑	PS23	Stapling and folding stopper HP PS
㉒	PS24	Alignment-plate/lower HP PS
㉓	PS25	Folding paper-exit PS



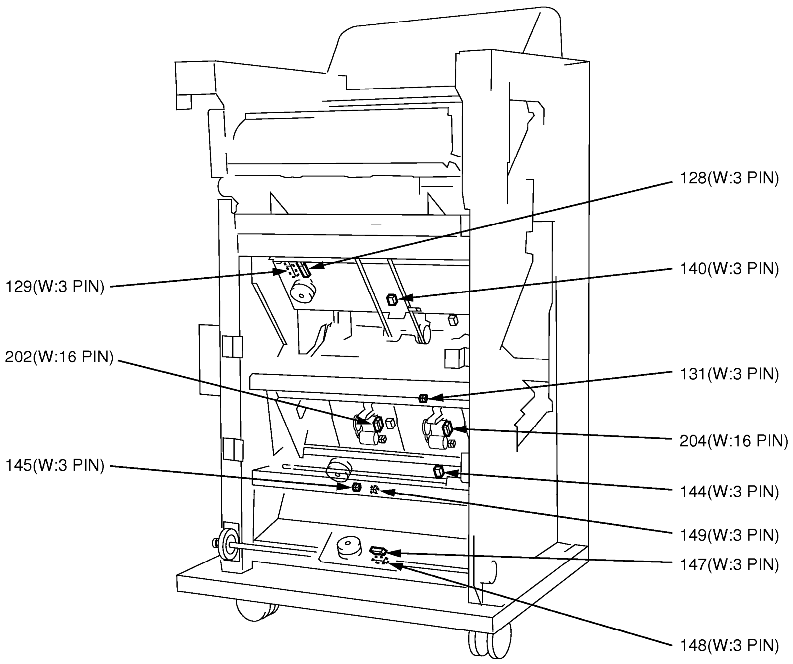
㉔	PS26	Folding passage PS/2
㉕	PS27	Folding stopper HP PS
㉖	PS28	Folding passage PS/1
㉗	PS29	Folding full up PS
㉘	PS30	Clincher HP PS/R
㉙	PS31	Stapler HP PS/R
㉚	PS32	Clincher timing PS/R
㉛	PS33	Clincher HP PS/F
㉜	PS34	Stapler HP PS/F
㉝	PS35	Clincher timing PS/F
㉞	PS207	Paper exit-cover open/close detection PS
㉟	SW1	Cartridge detection SW/R
㊱	SW2	Staple detection SW/R
㊲	SW3	Cartridge detection SW/F
㊳	SW4	Staple detection SW/F

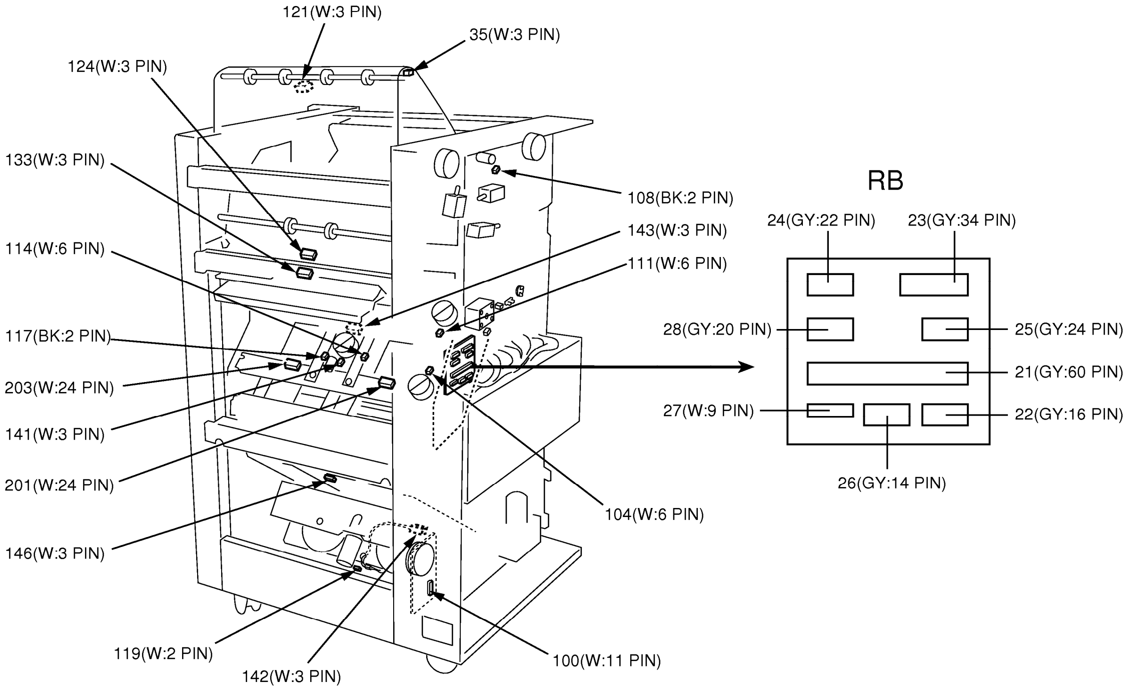


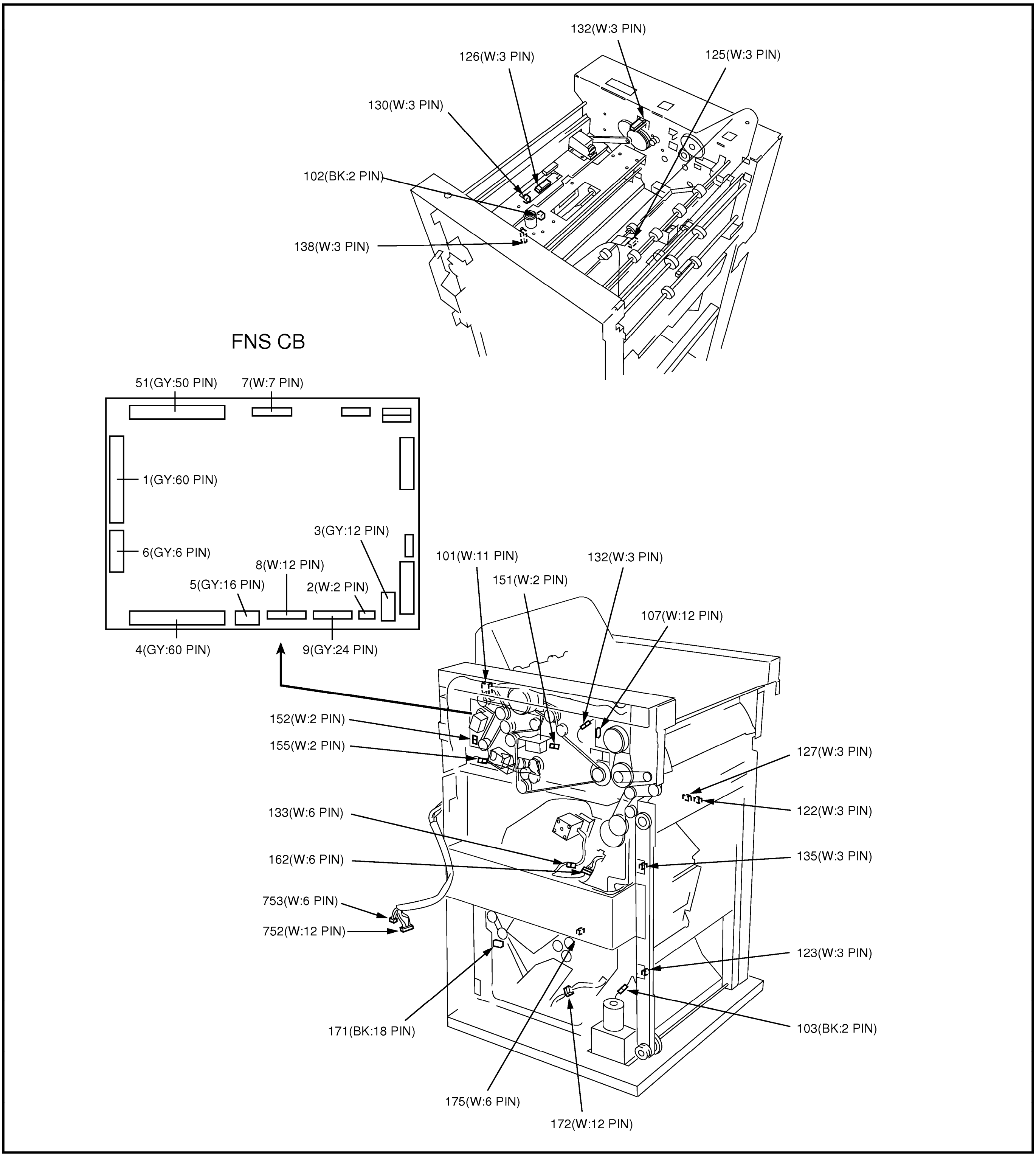
2. Motors, Solenoids, and Boards

①	M1	FNS conveyance motor
②	M2	Roller-shift motor
③	M3	Tray up-down motor
④	M4	Stapler rotation motor
⑤	M5	Alignment-plate/upper motor
⑥	M7	Paper exit-roller motor
⑦	M8	Paper exit-opening motor
⑧	M11	Stapler-movement motor
⑨	M13	Stacker entrance motor
⑩	M14	Stapling and folding stopper motor
⑪	M15	Alignment-plate/lower motor
⑫	M17	Stapling and folding stopper release motor
⑬	M18	Folding-stopper motor
⑭	M19	Folding-knife motor
⑮	M20	Folding conveyance motor
⑯	M21	Clincher motor-R
⑰	M22	Stapler motor-R
⑱	M23	Clincher motor-F
⑲	M24	Stapler motor-F
⑳	SD1	Gate solenoid
㉑	SD2	Sub-tray paper exit solenoid
㉒	SD4	Paper exit-opening solenoid
㉓	SD5	By-pass solenoid
㉔	FNS CB	FNS control board
㉕	RB	Relay board

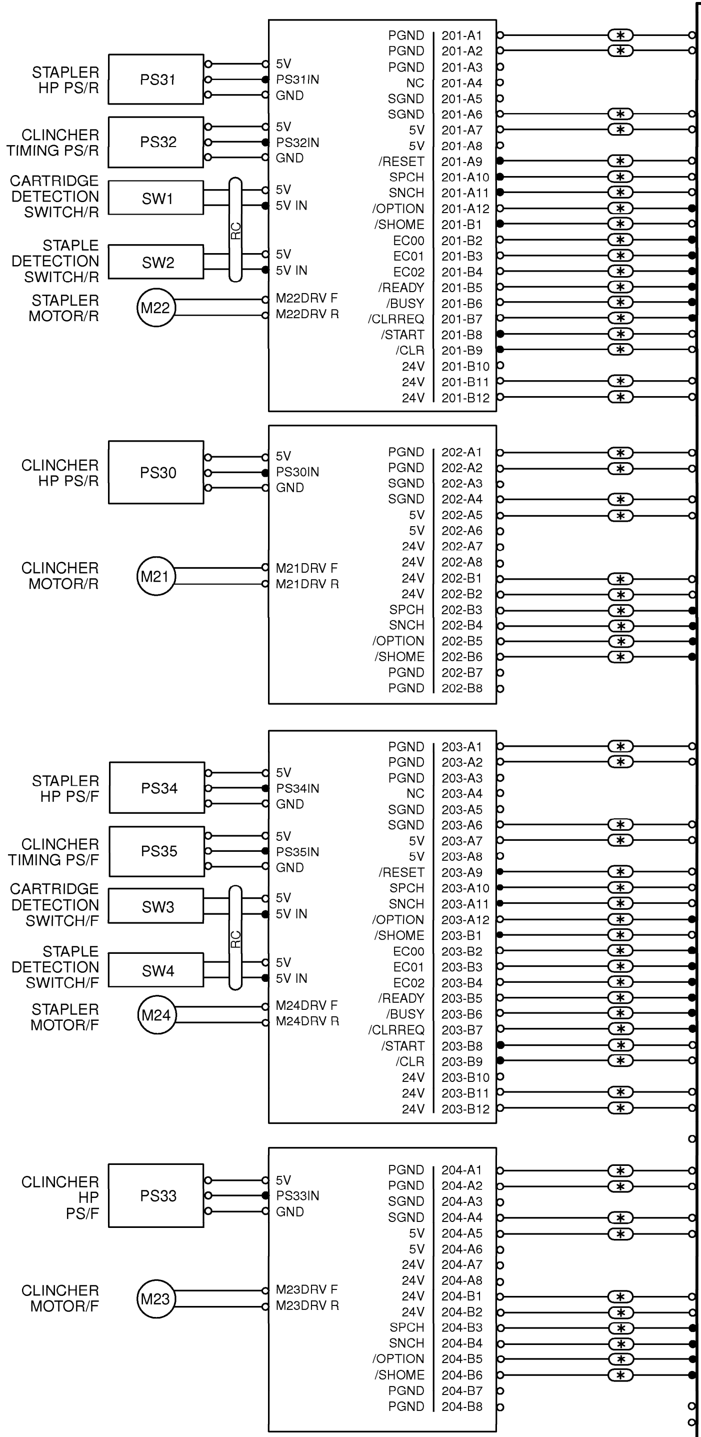
FS-108/FS-108BM CONNECTER LAYOUT DRAWING

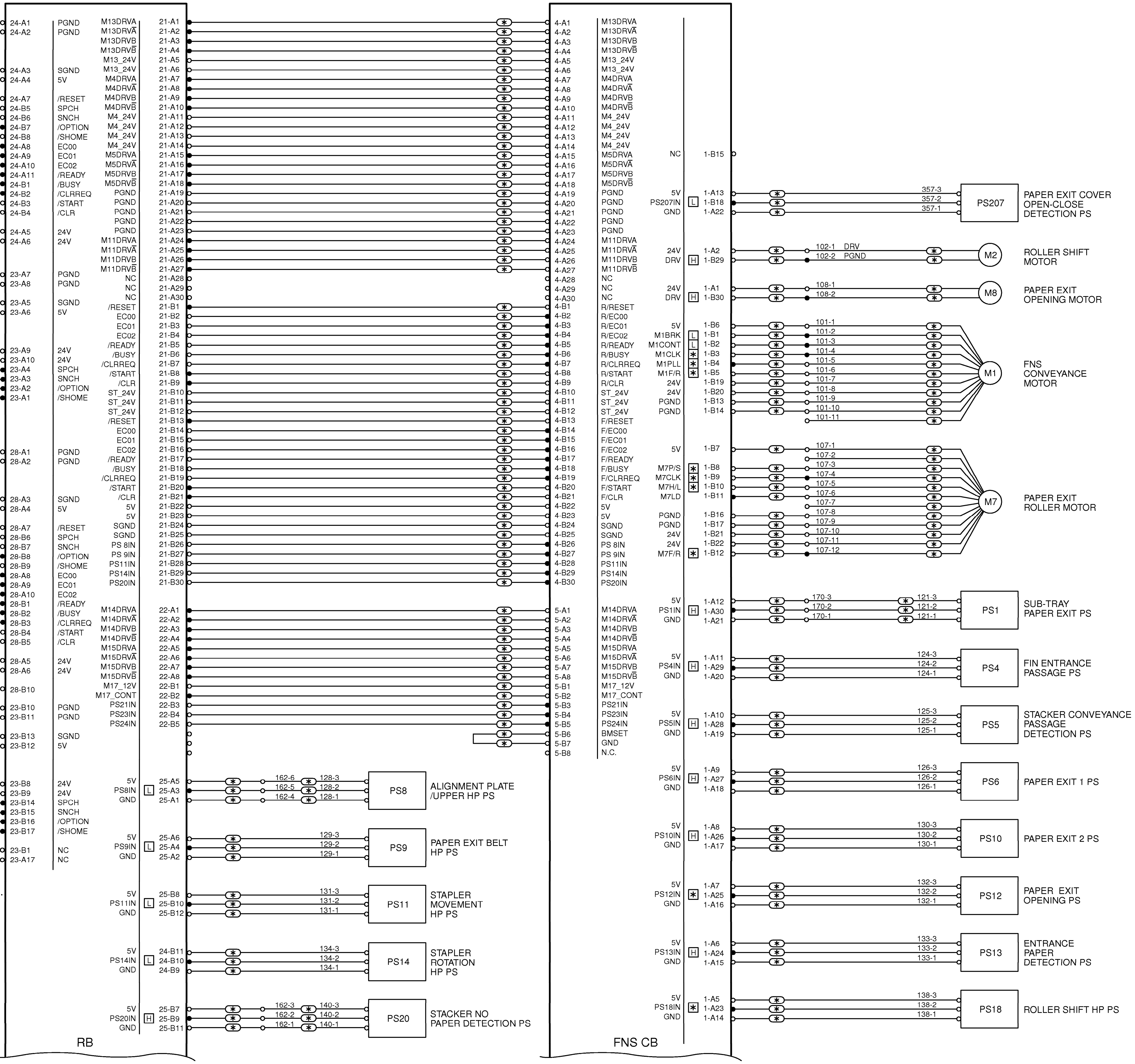

128(W:3 PIN)
129(W:3 PIN)
140(W:3 PIN)
202(W:16 PIN)
131(W:3 PIN)
204(W:16 PIN)
145(W:3 PIN)
144(W:3 PIN)
149(W:3 PIN)
147(W:3 PIN)
148(W:3 PIN)


121(W:3 PIN)
35(W:3 PIN)
124(W:3 PIN)
133(W:3 PIN)
108(BK:2 PIN)
143(W:3 PIN)
111(W:6 PIN)
114(W:6 PIN)
117(BK:2 PIN)
203(W:24 PIN)
141(W:3 PIN)
201(W:24 PIN)
104(W:6 PIN)
146(W:3 PIN)
119(W:2 PIN)
142(W:3 PIN)
100(W:11 PIN)
RB
24(GY:22 PIN)
23(GY:34 PIN)
28(GY:20 PIN)
25(GY:24 PIN)
21(GY:60 PIN)
27(W:9 PIN)
22(GY:16 PIN)
26(GY:14 PIN)


132(W:3 PIN)
126(W:3 PIN)
125(W:3 PIN)
130(W:3 PIN)
102(BK:2 PIN)
138(W:3 PIN)
FNS CB
51(GY:50 PIN)
7(W:7 PIN)
1(GY:60 PIN)
3(GY:12 PIN)
6(GY:6 PIN)
8(W:12 PIN)
5(GY:16 PIN)
2(W:2 PIN)
4(GY:60 PIN)
9(GY:24 PIN)
101(W:11 PIN)
132(W:3 PIN)
151(W:2 PIN)
107(W:12 PIN)
152(W:2 PIN)
155(W:2 PIN)
127(W:3 PIN)
122(W:3 PIN)
133(W:6 PIN)
162(W:6 PIN)
135(W:3 PIN)
753(W:6 PIN)
752(W:12 PIN)
123(W:3 PIN)
171(BK:18 PIN)
103(BK:2 PIN)
175(W:6 PIN)
172(W:12 PIN)

FS-108/FS-108BM OVERALL WIRING DIAGRAM (1/3)

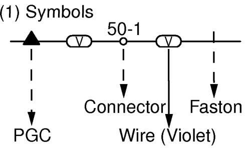

STAPLER HP PS/R
PS31
CLINCHER TIMING PS/R
PS32
CARTRIDGE DETECTION SWITCH/R
SW1
STAPLE DETECTION SWITCH/R
SW2
STAPLER MOTOR/R
M22
CLINCHER HP PS/R
PS30
CLINCHER MOTOR/R
M21
STAPLER HP PS/F
PS34
CLINCHER TIMING PS/F
PS35
CARTRIDGE DETECTION SWITCH/F
SW3
STAPLE DETECTION SWITCH/F
SW4
STAPLER MOTOR/F
M24
CLINCHER HP PS/F
PS33
CLINCHER MOTOR/F
M23
RC


RB
FNS CB
PS8
ALIGNMENT PLATE /UPPER HP PS
PS9
PAPER EXIT BELT HP PS
PS11
STAPLER MOVEMENT HP PS
PS14
STAPLER ROTATION HP PS
PS20
STACKER NO PAPER DETECTION PS
PS207
PAPER EXIT COVER OPEN-CLOSE DETECTION PS
M2
ROLLER SHIFT MOTOR
M8
PAPER EXIT OPENING MOTOR
M1
FNS CONVEYANCE MOTOR
M7
PAPER EXIT ROLLER MOTOR
PS1
SUB-TRAY PAPER EXIT PS
PS4
FIN ENTRANCE PASSAGE PS
PS5
STACKER CONVEYANCE PASSAGE DETECTION PS
PS6
PAPER EXIT 1 PS
PS10
PAPER EXIT 2 PS
PS12
PAPER EXIT OPENING PS
PS13
ENTRANCE PAPER DETECTION PS
PS18
ROLLER SHIFT HP PS

[Reading the Diagrams]

1. Signal states reflect condition in which system is in normal idling state with the main switch ON.
2. Symbols used in circuit diagrams are as follows.

(1) Symbols


50-1
V
V
PGC
Connector
Wire (Violet)
Faston

(2) Color Codes

BN	: Brown	B	: Blue
R	: Red	V	: Violet
O	: Orange	GY	: Gray
Y	: Yellow	W	: White
GN	: Green	BK	: Black
LB	: Light blue	P	: Pink

Example: (Y/GN) denotes a green wire with a yellow stripe.

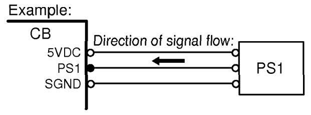
(3) (RC) denotes a ribbon cable.

(4) Signal Flow

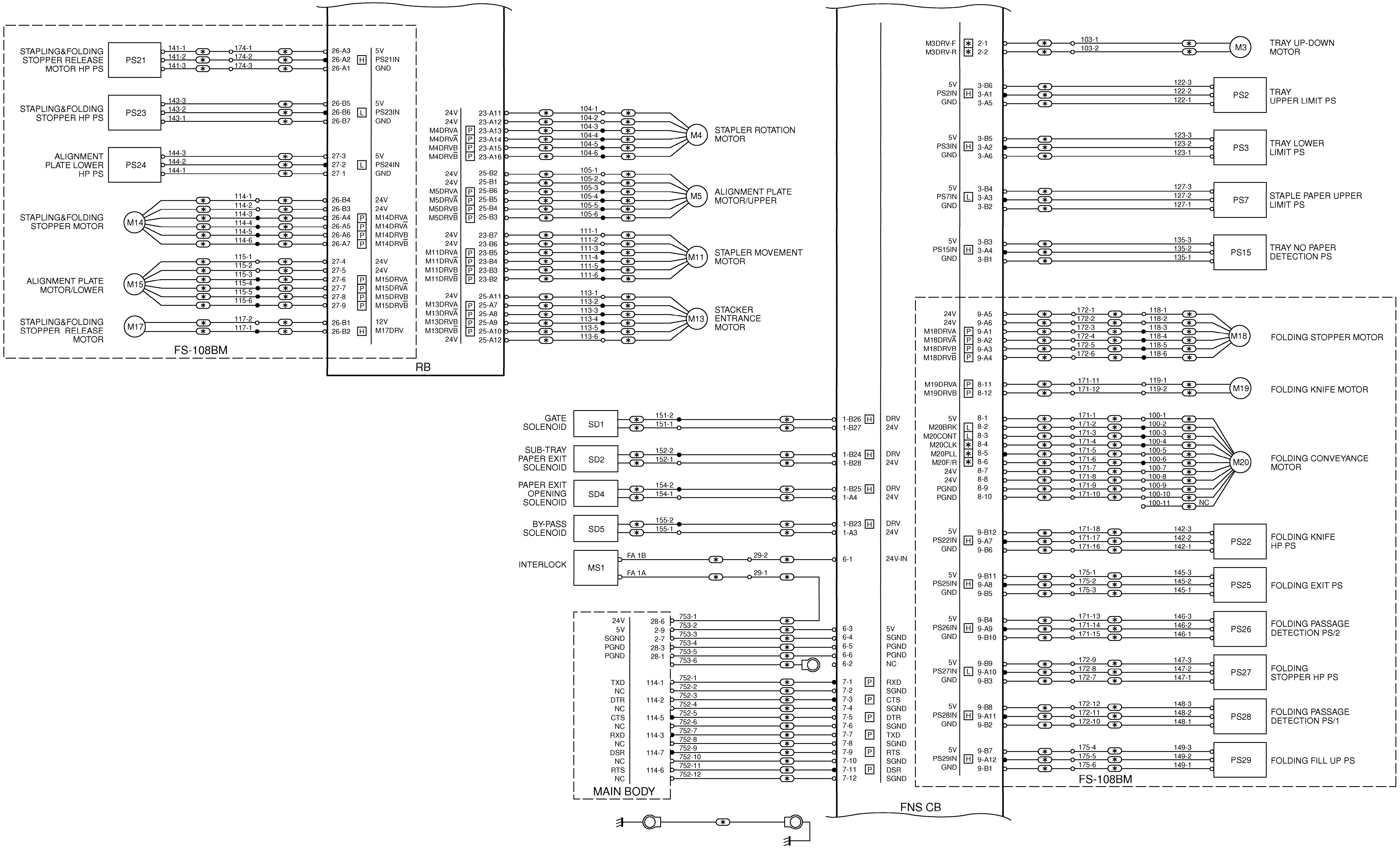
Connectors are indicated by circle (○) or (●).

The dark circles indicate the direction of the signal flow.

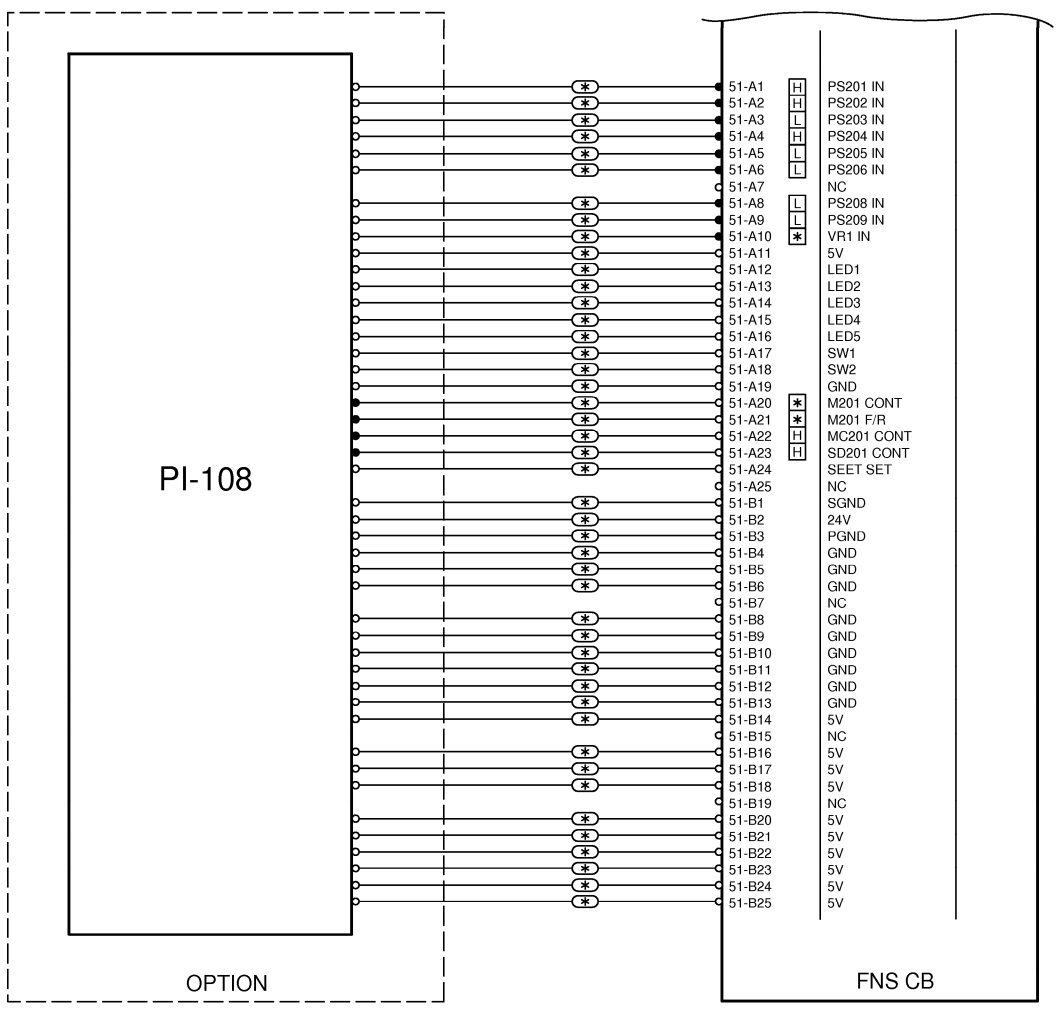
Example:


CB
5VDC
PS1
SGND
Direction of signal flow:
PS1

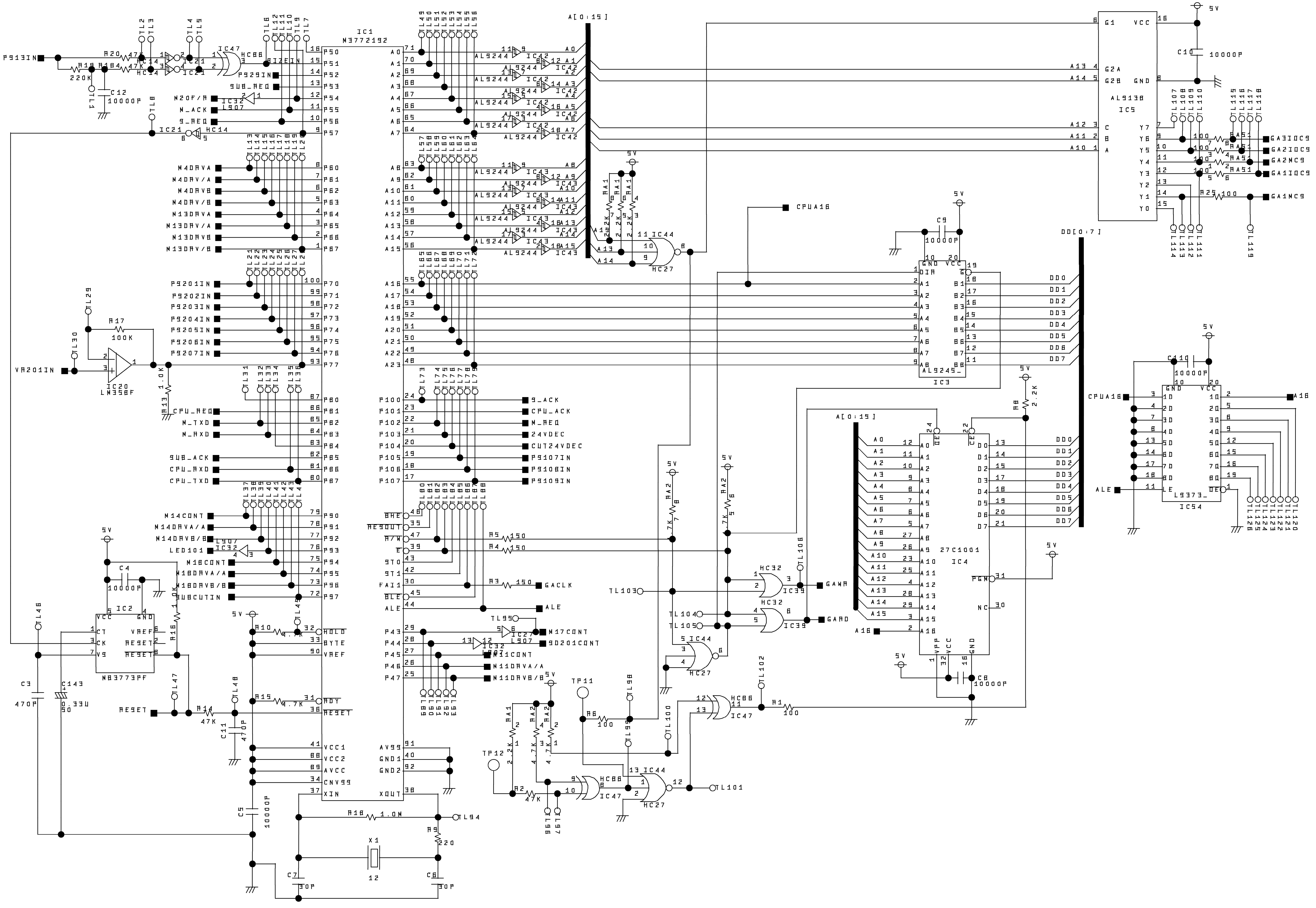
FS-108/FS-108BM OVERALL WIRING DIAGRAM (2/3)


STAPLING&FOLDING STOPPER RELEASE MOTOR HP PS
PS21
STAPLING&FOLDING STOPPER HP PS
PS23
ALIGNMENT PLATE LOWER HP PS
PS24
STAPLING&FOLDING STOPPER MOTOR
M14
ALIGNMENT PLATE MOTOR/LOWER
M15
STAPLING&FOLDING STOPPER RELEASE MOTOR
M17
FS-108BM
RB
5V
PS21IN
GND
PS23IN
PS24IN
24V
M14DRVA
M14DRVB
M15DRVA
M15DRVB
12V
M17DRV
M4DRVA
M4DRVB
M5DRVA
M5DRVB
M11DRVA
M11DRVB
M13DRVA
M13DRVB
M4
STAPLER ROTATION MOTOR
M5
ALIGNMENT PLATE MOTOR/UPPER
M11
STAPLER MOVEMENT MOTOR
M13
STACKER ENTRANCE MOTOR
GATE SOLENOID
SD1
SUB-TRAY PAPER EXIT SOLENOID
SD2
PAPER EXIT OPENING SOLENOID
SD4
BY-PASS SOLENOID
SD5
INTERLOCK
MS1
FA 1B
FA 1A
29-2
29-1
DRV
24V-IN
MAIN BODY
SGND
PGND
TXD
NC
DTR
CTS
RXD
DSR
RTS
FNS CB
M3DRV-F
M3DRV-R
M3
TRAY UP-DOWN MOTOR
PS2IN
PS2
TRAY UPPER LIMIT PS
PS3IN
PS3
TRAY LOWER LIMIT PS
PS7IN
PS7
STAPLE PAPER UPPER LIMIT PS
PS15IN
PS15
TRAY NO PAPER DETECTION PS
M18DRVA
M18DRVB
M18
FOLDING STOPPER MOTOR
M19DRVA
M19DRVB
M19
FOLDING KNIFE MOTOR
M20BRK
M20CONT
M20CLK
M20PLL
M20F/R
PGND
M20
FOLDING CONVEYANCE MOTOR
NC
PS22IN
PS22
FOLDING KNIFE HP PS
PS25IN
PS25
FOLDING EXIT PS
PS26IN
PS26
FOLDING PASSAGE DETECTION PS/2
PS27IN
PS27
FOLDING STOPPER HP PS
PS28IN
PS28
FOLDING PASSAGE DETECTION PS/1
PS29IN
PS29
FOLDING FILL UP PS
FS-108BM

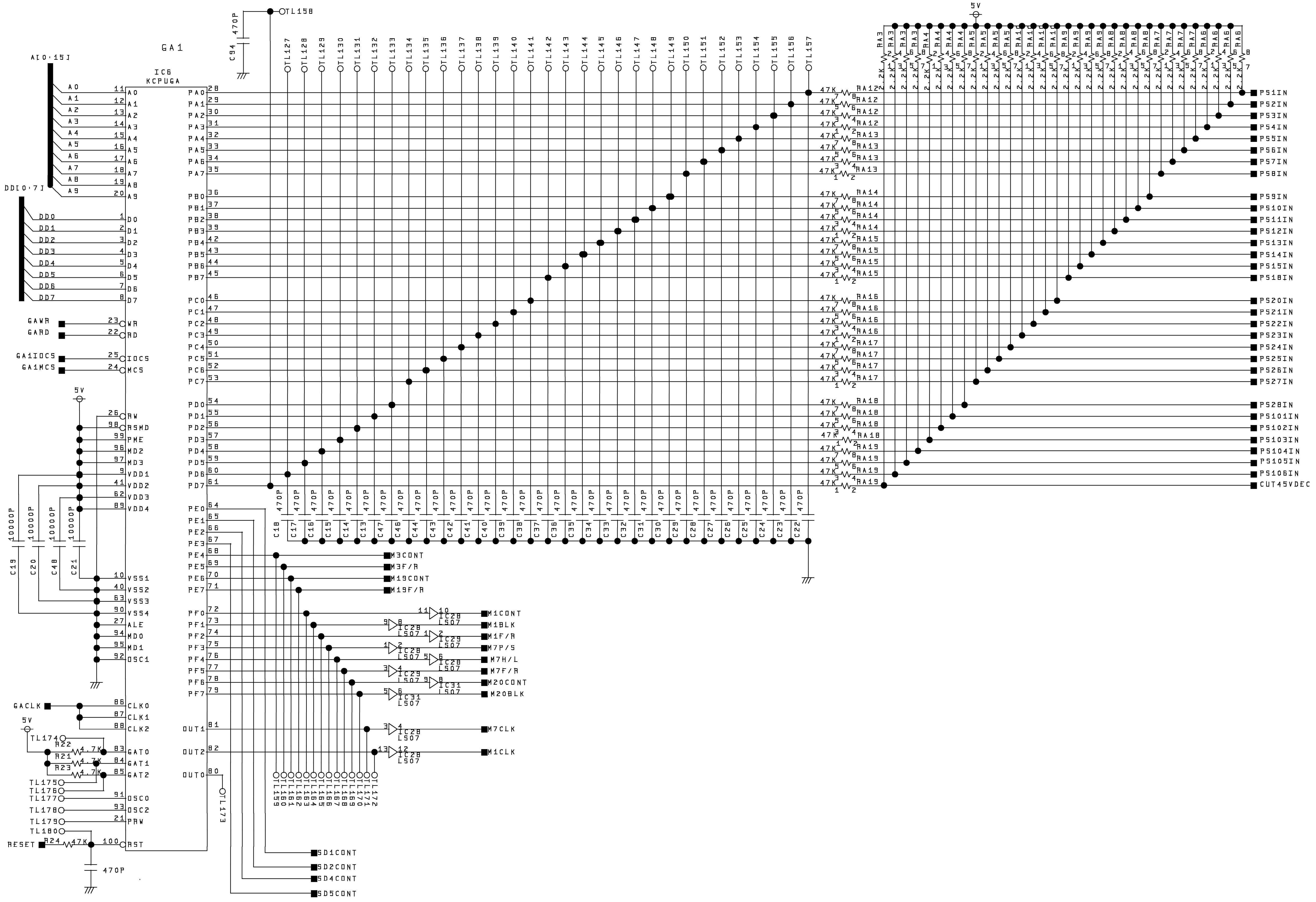
FS-108/FS-108BM OVERALL WIRING DIAGRAM (3/3)


PI-108
OPTION
FNS CB
51-A1 H PS201 IN
51-A2 H PS202 IN
51-A3 L PS203 IN
51-A4 H PS204 IN
51-A5 L PS205 IN
51-A6 L PS206 IN
51-A7 NC
51-A8 L PS208 IN
51-A9 L PS209 IN
51-A10 * VR1 IN
51-A11 5V
51-A12 LED1
51-A13 LED2
51-A14 LED3
51-A15 LED4
51-A16 LED5
51-A17 SW1
51-A18 SW2
51-A19 GND
51-A20 * M201 CONT
51-A21 * M201 F/R
51-A22 H MC201 CONT
51-A23 H SD201 CONT
51-A24 SEET SET
51-A25 NC
51-B1 SGND
51-B2 24V
51-B3 PGND
51-B4 GND
51-B5 GND
51-B6 GND
51-B7 NC
51-B8 GND
51-B9 GND
51-B10 GND
51-B11 GND
51-B12 GND
51-B13 GND
51-B14 5V
51-B15 NC
51-B16 5V
51-B17 5V
51-B18 5V
51-B19 NC
51-B20 5V
51-B21 5V
51-B22 5V
51-B23 5V
51-B24 5V
51-B25 5V

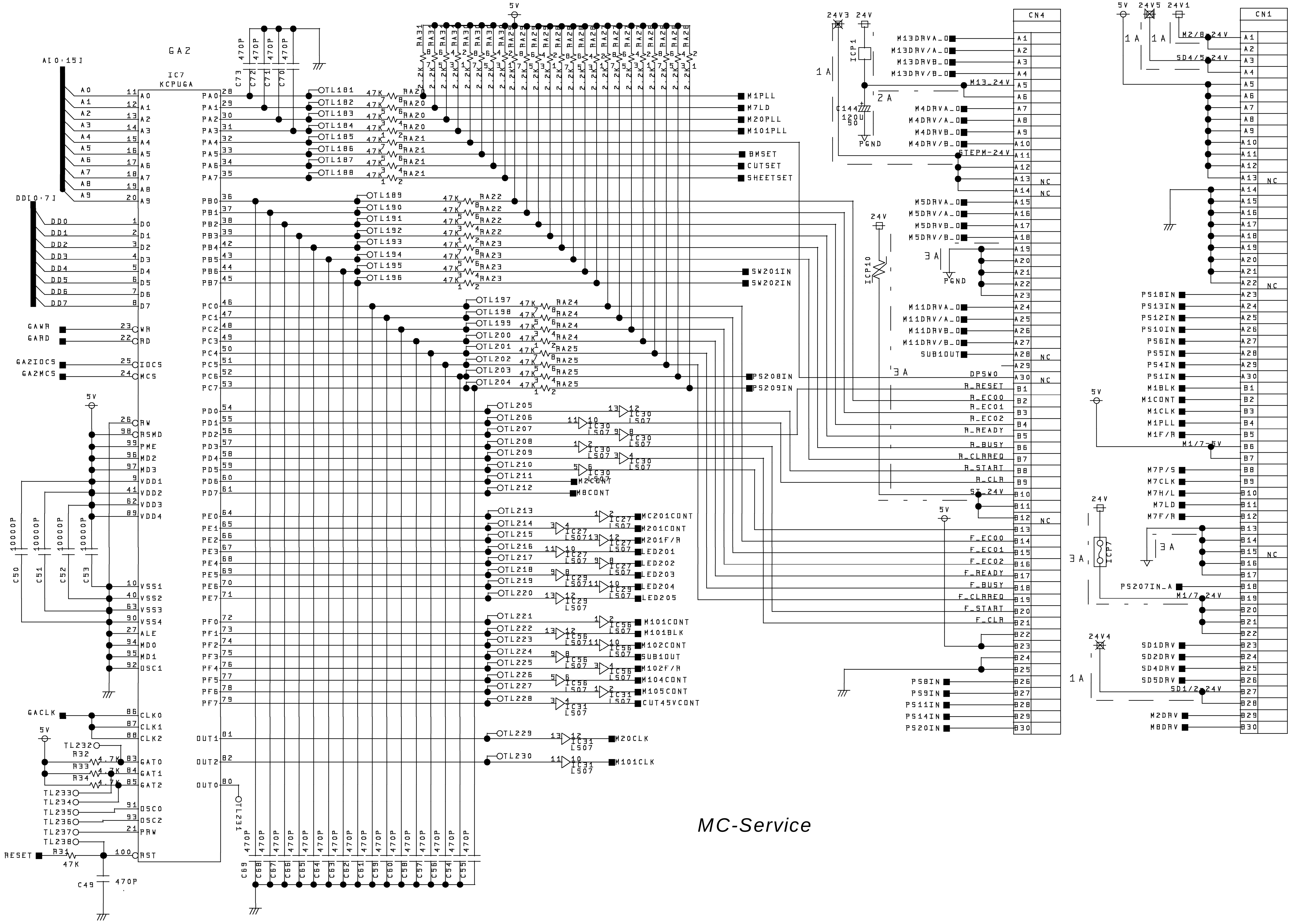
FS-108/FS-108BM CONTROL-BOARD CIRCUIT DIAGRAM (1/9)


IC1
M3772192
IC2
M63773FP
IC3
AL9245
IC4
27C1001
IC5
AL9138
IC54
LS373
IC20
LM358F
IC42
IC43
IC44
HC27
IC47
HC86
IC32
HC32
IC21
HC14
IC39
A[0:15]
DD[0:7]
CPUA16
5V
X1
RESET
ALE
GACLK
GAWR
GARD
MC-Service

FS-108/FS-108BM CONTROL-BOARD CIRCUIT DIAGRAM (2/9)


GA1
IC6
KCPUGA
A[0:15]
A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
DD[0:7]
DD0
DD1
DD2
DD3
DD4
DD5
DD6
DD7
D0
D1
D2
D3
D4
D5
D6
D7
GAWR
GARD
WR
RD
GA1IOCS
GA1MCS
IOCS
MCS
5V
RW
RSMD
PME
MD2
MD3
VDD1
VDD2
VDD3
VDD4
VSS1
VSS2
VSS3
VSS4
ALE
MD0
MD1
OSC1
10000P
C19
C20
C48
C21
GACLK
CLK0
CLK1
CLK2
TL174
R22
R21
R23
4.7K
GAT0
GAT1
GAT2
TL175
TL176
TL177
TL178
TL179
TL180
OSC0
OSC2
PRW
RESET
R24
47K
RST
470P
PA0
PA1
PA2
PA3
PA4
PA5
PA6
PA7
PB0
PB1
PB2
PB3
PB4
PB5
PB6
PB7
PC0
PC1
PC2
PC3
PC4
PC5
PC6
PC7
PD0
PD1
PD2
PD3
PD4
PD5
PD6
PD7
PE0
PE1
PE2
PE3
PE4
PE5
PE6
PE7
PF0
PF1
PF2
PF3
PF4
PF5
PF6
PF7
OUT1
OUT2
OUT0
TL173
C94
TL158
TL127
TL128
TL129
TL130
TL131
TL132
TL133
TL134
TL135
TL136
TL137
TL138
TL139
TL140
TL141
TL142
TL143
TL144
TL145
TL146
TL147
TL148
TL149
TL150
TL151
TL152
TL153
TL154
TL155
TL156
TL157
C18
C17
C16
C15
C14
C13
C47
C46
C44
C43
C42
C41
C40
C39
C38
C37
C36
C35
C34
C33
C32
C31
C30
C29
C28
C27
C26
C25
C24
C23
C22
M3CONT
M3F/R
M19CONT
M19F/R
IC28
IC29
IC31
LS07
M1CONT
M1BLK
M1F/R
M7P/S
M7H/L
M7F/R
M20CONT
M20BLK
M7CLK
M1CLK
TL159
TL160
TL161
TL162
TL163
TL164
TL165
TL166
TL167
TL168
TL169
TL170
TL171
TL172
SD1CONT
SD2CONT
SD4CONT
SD5CONT
RA12
RA13
RA14
RA15
RA16
RA17
RA18
RA19
RA3
RA4
RA5
RA1
RA9
RA8
RA7
RA6
2K
2.2K
PS1IN
PS2IN
PS3IN
PS4IN
PS5IN
PS6IN
PS7IN
PS8IN
PS9IN
PS10IN
PS11IN
PS12IN
PS13IN
PS14IN
PS15IN
PS18IN
PS20IN
PS21IN
PS22IN
PS23IN
PS24IN
PS25IN
PS26IN
PS27IN
PS28IN
PS101IN
PS102IN
PS103IN
PS104IN
PS105IN
PS106IN
CUT45VDEC

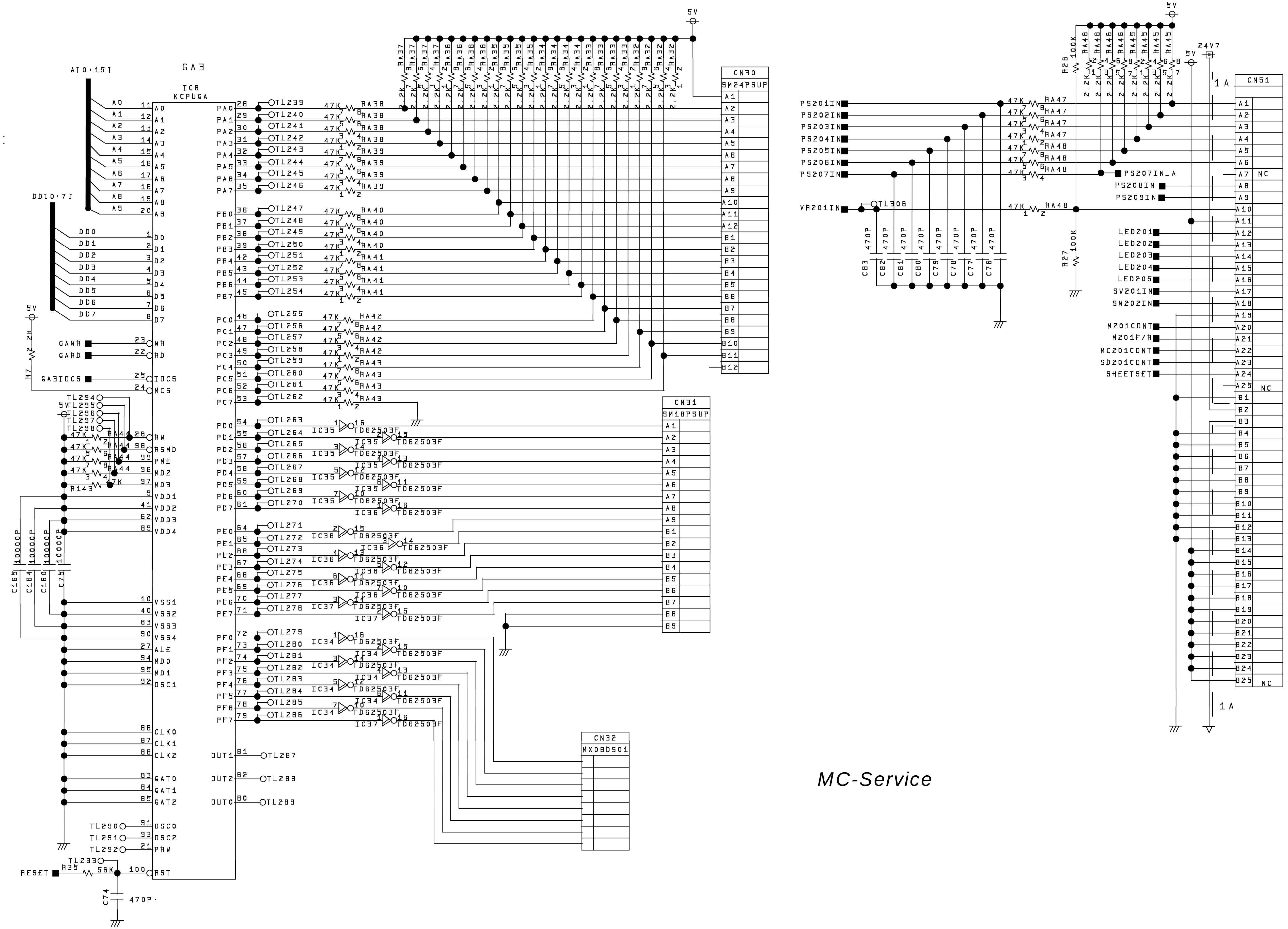
FS-108/FS-108BM CONTROL-BOARD CIRCUIT DIAGRAM (3/9)



GA2
IC7
KCPUGA
A[0:15]
DD[0:7]
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9
DD0 DD1 DD2 DD3 DD4 DD5 DD6 DD7
D0 D1 D2 D3 D4 D5 D6 D7
GAWR
GARD
GA2IOCS
GA2MCS
WR
RD
IOCS
MCS
5V
RW
RSMD
PME
MD2
MD3
VDD1 VDD2 VDD3 VDD4
VSS1 VSS2 VSS3 VSS4
ALE
MD0
MD1
OSC1
C50 C51 C52 C53
10000P
GACLK
CLK0 CLK1 CLK2
GAT0 GAT1 GAT2
R32 R33 R34
4.7K
TL232 TL233 TL234 TL235 TL236 TL237 TL238
OSC0 OSC2
PRW
RST
RESET
R31
47K
C49
470P
PA0 PA1 PA2 PA3 PA4 PA5 PA6 PA7
PB0 PB1 PB2 PB3 PB4 PB5 PB6 PB7
PC0 PC1 PC2 PC3 PC4 PC5 PC6 PC7
PD0 PD1 PD2 PD3 PD4 PD5 PD6 PD7
PE0 PE1 PE2 PE3 PE4 PE5 PE6 PE7
PF0 PF1 PF2 PF3 PF4 PF5 PF6 PF7
OUT0 OUT1 OUT2
C73 C72 C71 C70
470P
RA31 RA30 RA29 RA28 RA27 RA26
2.2K
RA20 RA21 RA22 RA23 RA24 RA25
47K
TL181 TL182 TL183 TL184 TL185 TL186 TL187 TL188
TL189 TL190 TL191 TL192 TL193 TL194 TL195 TL196
TL197 TL198 TL199 TL200 TL201 TL202 TL203 TL204
TL205 TL206 TL207 TL208 TL209 TL210 TL211 TL212
TL213 TL214 TL215 TL216 TL217 TL218 TL219 TL220
TL221 TL222 TL223 TL224 TL225 TL226 TL227 TL228
TL229 TL230 TL231
M1PLL
M7LD
M20PLL
M101PLL
BMSET
CUTSET
SHEETSET
SW201IN
SW202IN
PS208IN
PS209IN
IC30 LS07
M2CONT
M8CONT
IC27 LS07
MC201CONT
M201CONT
M201F/R
LED201 LED202 LED203 LED204 LED205
IC29 LS07
IC56 LS07
M101CONT
M101BLK
M102CONT
SUB1OUT
M102F/R
M104CONT
M105CONT
CUT45VCONT
IC31 LS07
M20CLK
M101CLK
C69 C68 C67 C66 C65 C64 C63 C62 C61 C60 C59 C58 C57 C56 C54 C55
470P
24V3 24V
ICP1
1A
C144
120U
50
PGND
2A
M13DRVA_O
M13DRV/A_O
M13DRVB_O
M13DRV/B_O
M13_24V
M4DRVA_O
M4DRV/A_O
M4DRVB_O
M4DRV/B_O
STEPM-24V
M5DRVA_O
M5DRV/A_O
M5DRVB_O
M5DRV/B_O
24V
ICP10
3A
M11DRVA_O
M11DRV/A_O
M11DRVB_O
M11DRV/B_O
SUB1OUT
DPSW0
R_RESET
R_ECO0
R_ECO1
R_ECO2
R_READY
R_BUSY
R_CLRREQ
R_START
R_CLR
ST_24V
F_ECO0
F_ECO1
F_ECO2
F_READY
F_BUSY
F_CLRREQ
F_START
F_CLR
PS8IN
PS9IN
PS11IN
PS14IN
PS20IN
CN4
A1–A30
B1–B30
NC
5V 24V5 24V1
M2/8_24V
SD4/5_24V
CN1
PS18IN
PS13IN
PS12IN
PS10IN
PS6IN
PS5IN
PS4IN
PS1IN
M1BLK
M1CONT
M1CLK
M1PLL
M1F/R
M1/7-5V
M7P/S
M7CLK
M7H/L
M7LD
M7F/R
ICP7
PS207IN_A
M1/7_24V
24V4
SD1DRV
SD2DRV
SD4DRV
SD5DRV
SD1/2_24V
M2DRV
M8DRV

MC-Service

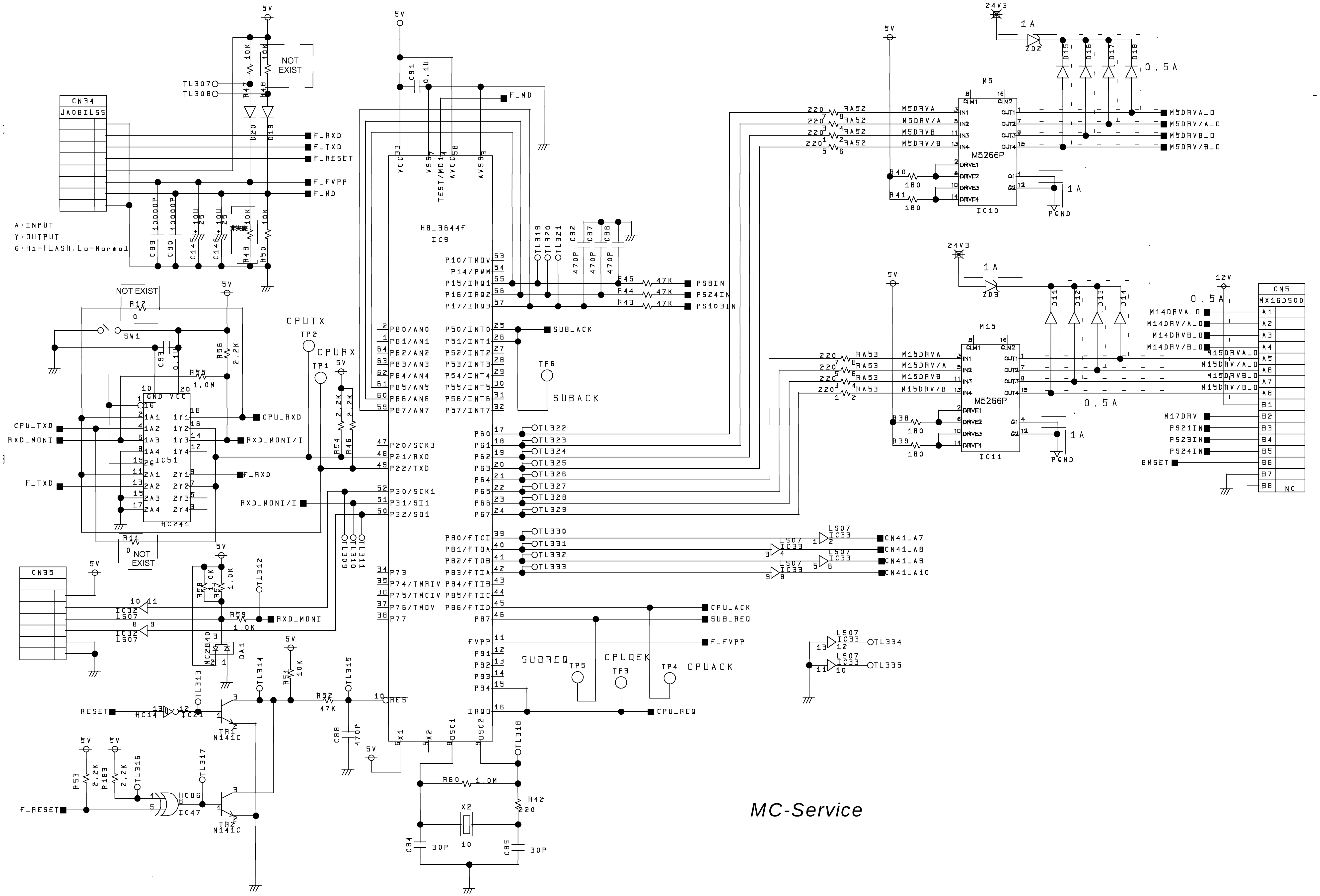
FS-108/FS-108BM CONTROL-BOARD CIRCUIT DIAGRAM (4/9)



GA3
IC8
KCPUGA
A[0:15]
DD[0:7]
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9
DD0 DD1 DD2 DD3 DD4 DD5 DD6 DD7
D0 D1 D2 D3 D4 D5 D6 D7
5V
R7 2.2K
GAWR
GARD
GA3IOCS
WR
RD
IOCS
MCS
TL294 TL295 TL296 TL297 TL298
RA44 47K
R143 47K
RW RSMD PME MD2 MD3
VDD1 VDD2 VDD3 VDD4
C165 C164 C160 C75 10000P
VSS1 VSS2 VSS3 VSS4
ALE MD0 MD1 OSC1
CLK0 CLK1 CLK2
GAT0 GAT1 GAT2
TL290 TL291 TL292
OSC0 OSC2 PRW
TL293
RESET
R35 56K
RST
C74 470P
OUT1 OUT2 OUT0
TL287 TL288 TL289
PA0 PA1 PA2 PA3 PA4 PA5 PA6 PA7
PB0 PB1 PB2 PB3 PB4 PB5 PB6 PB7
PC0 PC1 PC2 PC3 PC4 PC5 PC6 PC7
PD0 PD1 PD2 PD3 PD4 PD5 PD6 PD7
PE0 PE1 PE2 PE3 PE4 PE5 PE6 PE7
PF0 PF1 PF2 PF3 PF4 PF5 PF6 PF7
TL239–TL286
RA32 RA33 RA34 RA35 RA36 RA37 2.2K
RA38 RA39 RA40 RA41 RA42 RA43 47K
IC34 IC35 IC36 IC37 TD62503F
CN30
SM24PSUP
A1–A12 B1–B12
CN31
SM18PSUP
A1–A9 B1–B9
CN32
MX08DS01
PS201IN PS202IN PS203IN PS204IN PS205IN PS206IN PS207IN
PS207IN_A
PS208IN PS209IN
VR201IN
TL306
RA45 RA46 RA47 RA48
R26 100K
R27 100K
CB3 CB2 CB1 CB0 C79 C78 C77 C76 470P
24V7
1A
CN51
LED201 LED202 LED203 LED204 LED205
SW201IN SW202IN
M201CONT M201F/R MC201CONT SD201CONT SHEETSET
A1–A25 B1–B25
NC

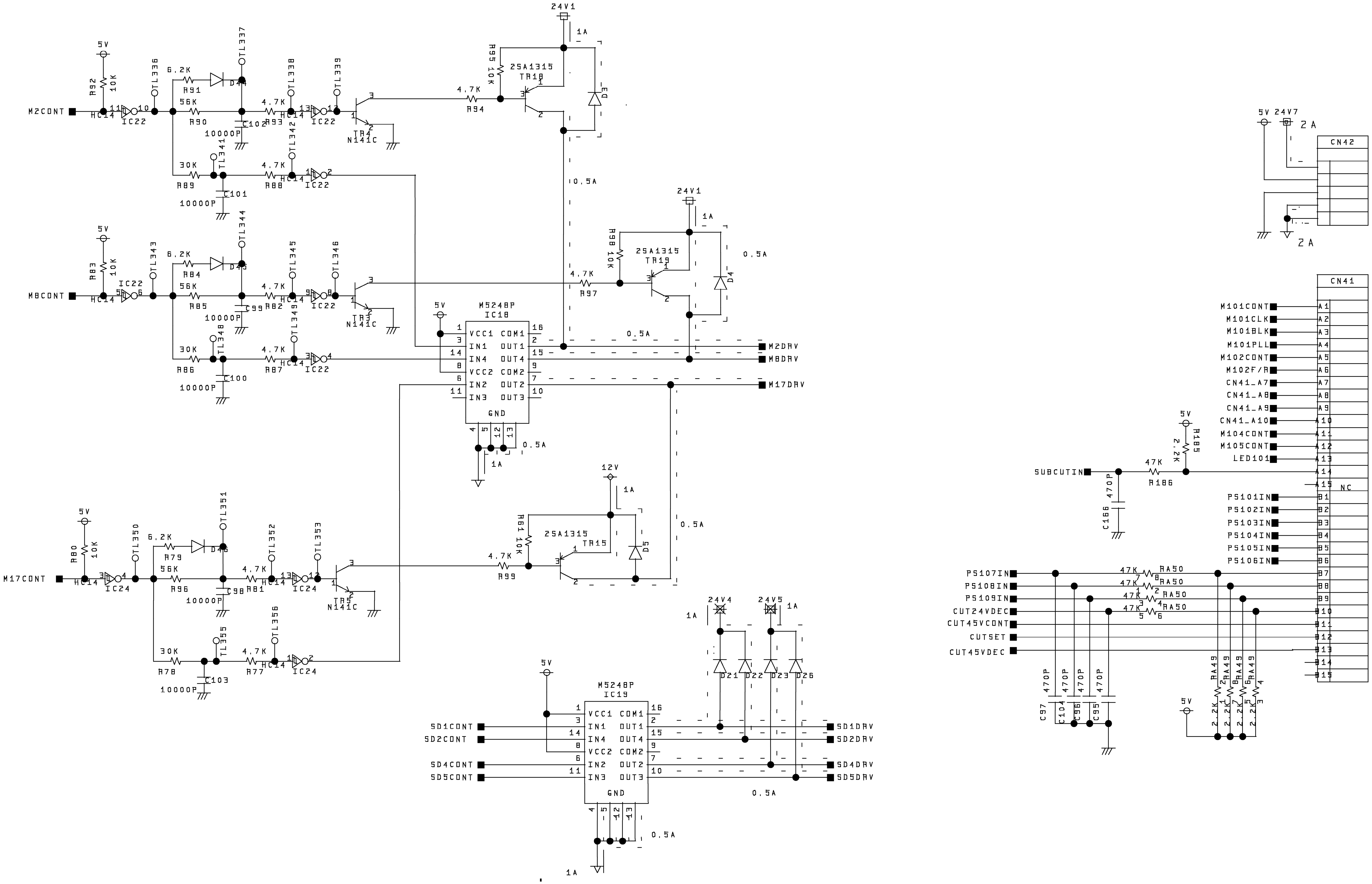
MC-Service

FS-108/FS-108BM CONTROL-BOARD CIRCUIT DIAGRAM (5/9)


CN34
JA08IL55
A:INPUT
Y:OUTPUT
G:Hi=FLASH.Lo=Normal
TL307
TL308
NOT EXIST
F_RXD
F_TXD
F_RESET
F_FVPP
F_MD
C89 10000P
C90 10000P
C145 10U 25
C146 10U 25
R49 10K
R50 10K
D20
D19
C91 0.1U
H8_3644F
IC9
VCC 33
VSS 7
TEST/MD 14
AVCC 58
AVSS 3
P10/TMOW
P14/PWM
P15/IRQ1
P16/IRQ2
P17/IRQ3
P50/INT0
P51/INT1
P52/INT2
P53/INT3
P54/INT4
P55/INT5
P56/INT6
P57/INT7
P60
P61
P62
P63
P64
P65
P66
P67
P80/FTCI
P81/FTOA
P82/FTOB
P83/FTIA
P84/FTIB
P85/FTIC
P86/FTID
P87
FVPP
P91
P92
P93
P94
IRQ0
PB0/AN0
PB1/AN1
PB2/AN2
PB3/AN3
PB4/AN4
PB5/AN5
PB6/AN6
PB7/AN7
P20/SCK3
P21/RXD
P22/TXD
P30/SCK1
P31/SI1
P32/SO1
P73
P74/TMRIV
P75/TMCIV
P76/TMOV
P77
RES
X1
X2
OSC1
OSC2
TL319
TL320
TL321
C92 470P
C87 470P
C86 470P
R45 47K
R44 47K
R43 47K
PS8IN
PS24IN
PS103IN
SUB_ACK
TP6
SUBACK
TL322
TL323
TL324
TL325
TL326
TL327
TL328
TL329
TL330
TL331
TL332
TL333
LS07 IC33
CN41_A7
CN41_A8
CN41_A9
CN41_A10
CPU_ACK
SUB_REQ
F_FVPP
CPU_REQ
SUBREQ
TP5
CPUQEK
TP3
TP4
CPUACK
TL334
TL335
CPUTX
TP2
CPURX
TP1
R54 2.2K
R46 2.2K
NOT EXIST
R12 0
SW1
C93 0.1U
R56 2.2K
R55 1.0M
HC241
IC51
CPU_RXD
RXD_MONI/I
CPU_TXD
RXD_MONI
F_TXD
F_RXD
R11 0
NOT EXIST
CN35
R58 10K
R57 1.0K
TL312
TL309
TL310
TL311
R59 1.0K
RXD_MONI
IC32 LS07
MC2840
DA1
R51 10K
TL313
TL314
TL315
R52 47K
C88 470P
RESET
HC14
IC21
TR1 N141C
R53 2.2K
R103 2.2K
TL316
TL317
HC86
IC47
F_RESET
TR2 N141C
TL318
R60 1.0M
R42 220
X2 10
C84 30P
C85 30P
24V3
1A
ZD2
D15
D16
D17
D18
0.5A
M5
M5266P
IC10
RA52 220
M5DRVA
M5DRV/A
M5DRVB
M5DRV/B
M5DRVA_O
M5DRV/A_O
M5DRVB_O
M5DRV/B_O
CLM1
CLM2
IN1
IN2
IN3
IN4
OUT1
OUT2
OUT3
OUT4
DRVE1
DRVE2
DRVE3
DRVE4
G1
G2
R40 180
R41 180
PGND
ZD3
D11
D12
D13
D14
M15
M5266P
IC11
RA53 220
M15DRVA
M15DRV/A
M15DRVB
M15DRV/B
M14DRVA_O
M14DRV/A_O
M14DRVB_O
M14DRV/B_O
M15DRVA_O
M15DRV/A_O
M15DRVB_O
M15DRV/B_O
R38 180
R39 180
12V
CN5
MX16D500
M17DRV
PS21IN
PS23IN
PS24IN
BMSET
A1
A2
A3
A4
A5
A6
A7
A8
B1
B2
B3
B4
B5
B6
B7
B8
NC
5V

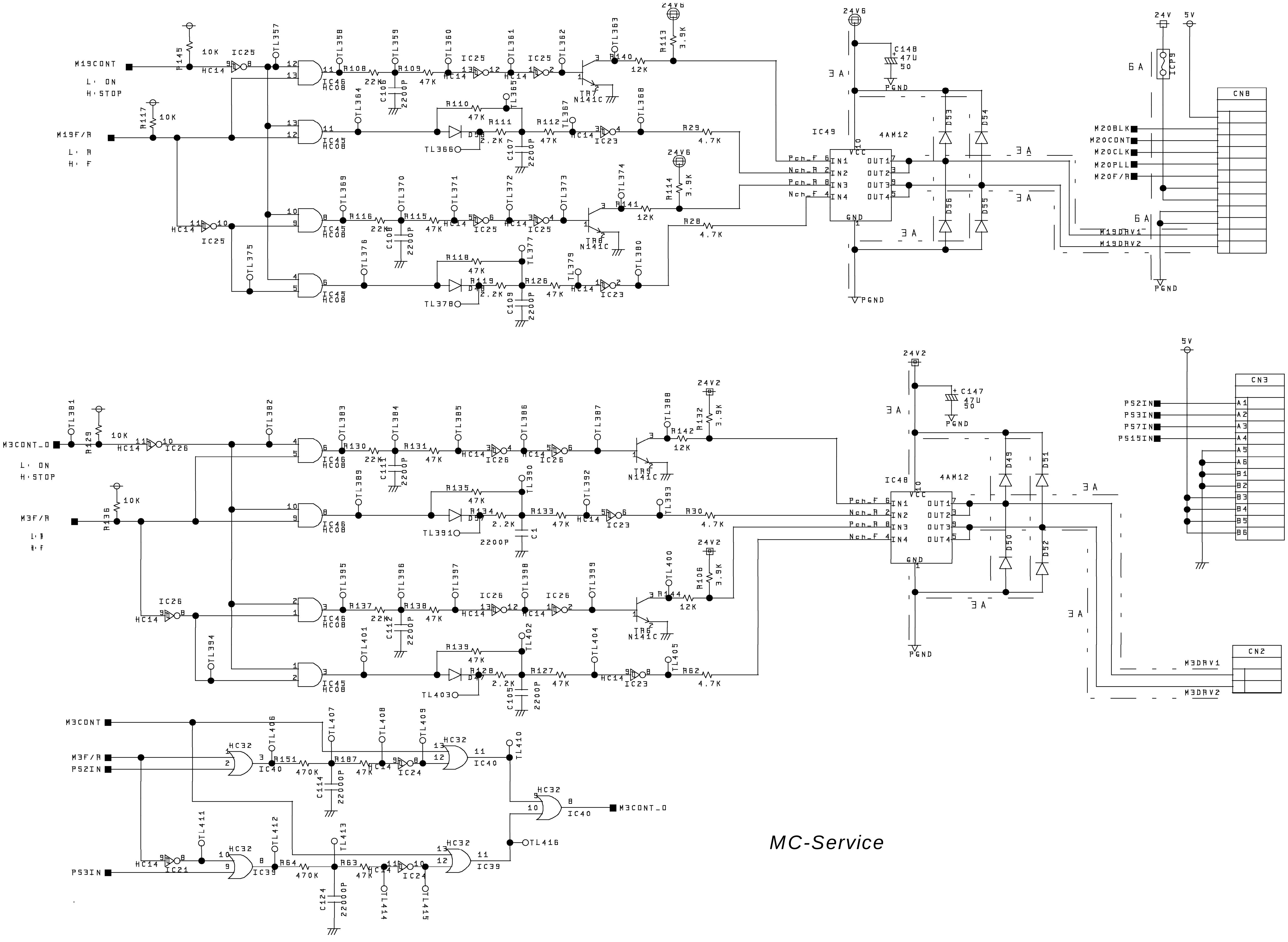
MC-Service

FS-108/FS-108BM CONTROL-BOARD CIRCUIT DIAGRAM (6/9)


M2CONT
M8CONT
M17CONT
5V
24V1
12V
R92 10K
R83 10K
R80 10K
HC14
IC22
IC24
TL336
TL337
TL338
TL339
TL341
TL342
TL343
TL344
TL345
TL346
TL348
TL349
TL350
TL351
TL352
TL353
TL355
TL356
6.2K
R91
R84
R79
56K
R90
R85
R96
30K
R89
R86
R78
4.7K
R93
R88
R82
R87
R81
R77
D44
D45
D46
C102
C101
C99
C100
C98
C103
10000P
TR4
TR3
TR5
N141C
R95 10K
R98 10K
R61 10K
2SA1315
TR18
TR19
TR15
R94
R97
R99
D3
D4
D5
1A
0.5A
M5248P
IC18
IC19
VCC1
COM1
IN1
OUT1
IN4
OUT4
VCC2
COM2
IN2
OUT2
IN3
OUT3
GND
M2DRV
M8DRV
M17DRV
SD1CONT
SD2CONT
SD4CONT
SD5CONT
SD1DRV
SD2DRV
SD4DRV
SD5DRV
24V4
24V5
D21
D22
D23
D26
24V7
2A
CN42
CN41
M101CONT
M101CLK
M101BLK
M101PLL
M102CONT
M102F/R
CN41_A7
CN41_A8
CN41_A9
CN41_A10
M104CONT
M105CONT
LED101
SUBCUTIN
47K
R186
R185
2.2K
470P
C166
NC
PS101IN
PS102IN
PS103IN
PS104IN
PS105IN
PS106IN
PS107IN
PS108IN
PS109IN
CUT24VDEC
CUT45VCONT
CUTSET
CUT45VDEC
RA50
RA49
C97
C104
C96
C95
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
A13
A14
A15
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
B11
B12
B13
B14
B15

MC-Service

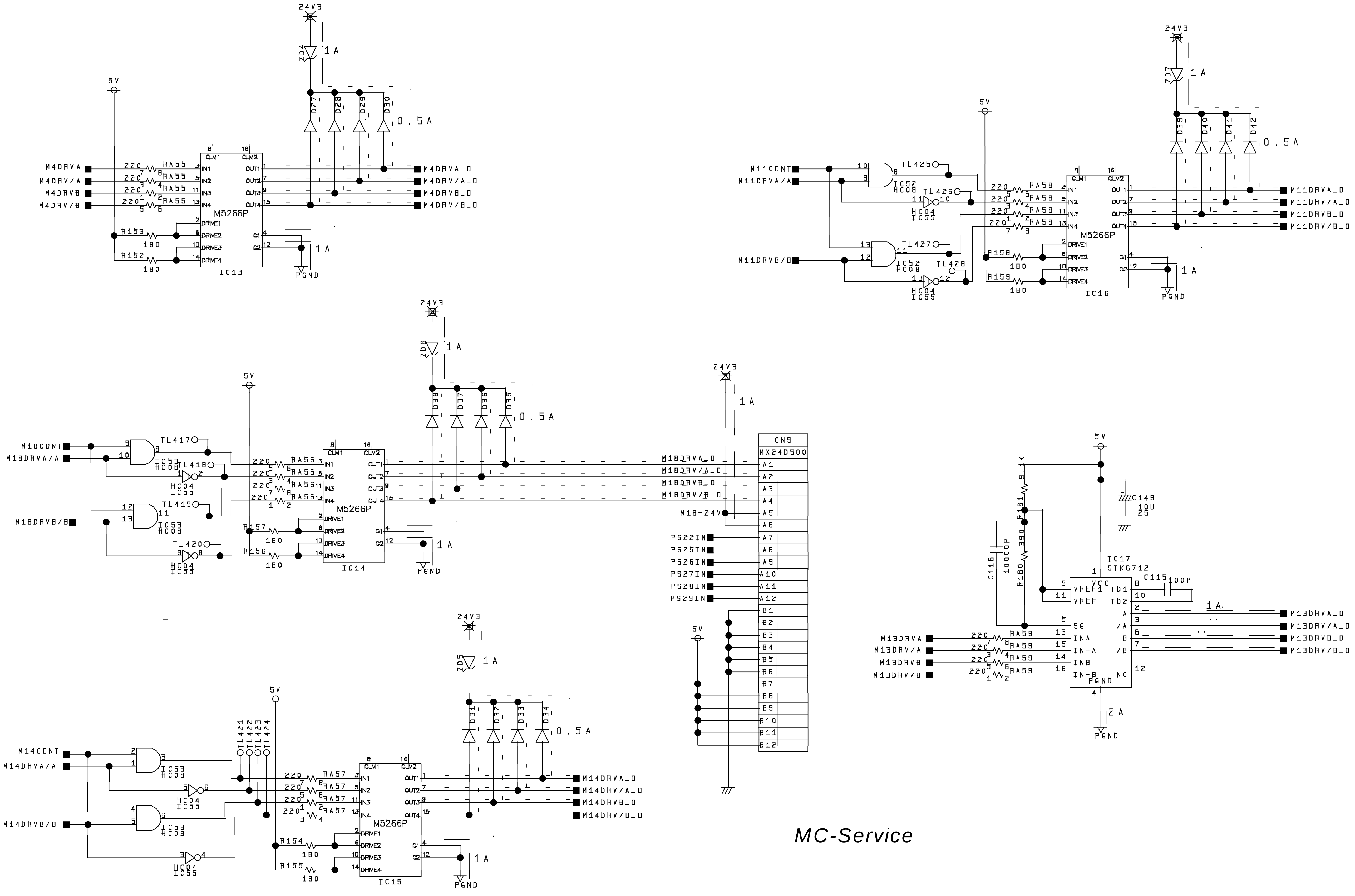
FS-108/FS-108BM CONTROL-BOARD CIRCUIT DIAGRAM (7/9)



M19CONT
L: ON
H: STOP
M19F/R
L: R
H: F
M3CONT_O
L: ON
H: STOP
M3F/R
L: R
H: F
M3CONT
M3F/R
PS2IN
PS3IN
M3CONT_O
IC25
IC45
IC46
IC23
IC26
IC24
IC21
IC39
IC40
HC14
HC08
HC32
IC49
IC48
4AM12
TR7
TR8
TR9
TR5
N141C
24V6
24V2
24V
5V
C148
47U
50
C147
PGND
ICP9
6A
3A
CN8
M20BLK
M20CONT
M20CLK
M20PLL
M20F/R
M19DRV1
M19DRV2
CN3
PS2IN
PS3IN
PS7IN
PS15IN
CN2
M3DRV1
M3DRV2
Pch_F
Nch_R
Pch_R
Nch_F
IN1
IN2
IN3
IN4
OUT1
OUT2
OUT3
OUT4
VCC
GND
D53
D54
D56
D55
D49
D51
D50
D52
R145
R117
R108
R109
R110
R111
R112
R140
R113
R29
R116
R115
R118
R119
R126
R141
R114
R28
R129
R136
R130
R131
R135
R134
R133
R142
R132
R30
R137
R138
R139
R128
R127
R144
R106
R62
R151
R187
R64
R63
C106
C107
C108
C109
C111
C1
C112
C105
C114
C124
10K
22K
47K
2.2K
12K
3.9K
4.7K
470K
2200P
22000P
TL357
TL358
TL359
TL360
TL361
TL362
TL363
TL364
TL365
TL366
TL367
TL368
TL369
TL370
TL371
TL372
TL373
TL374
TL375
TL376
TL377
TL378
TL379
TL380
TL381
TL382
TL383
TL384
TL385
TL386
TL387
TL388
TL389
TL390
TL391
TL392
TL393
TL394
TL395
TL396
TL397
TL398
TL399
TL400
TL401
TL402
TL403
TL404
TL405
TL406
TL407
TL408
TL409
TL410
TL411
TL412
TL413
TL414
TL415
TL416

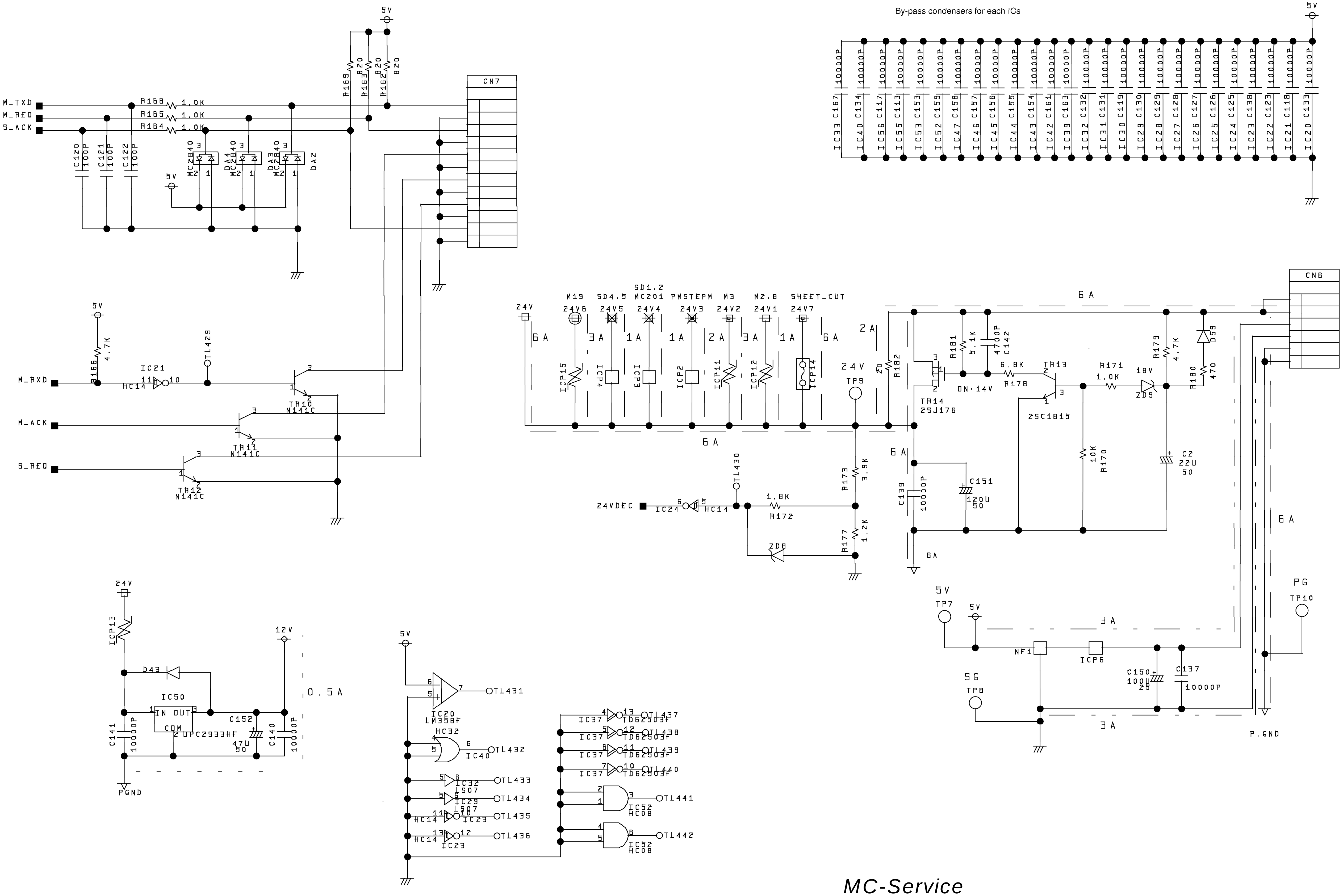
MC-Service

FS-108/FS-108BM CONTROL-BOARD CIRCUIT DIAGRAM (8/9)


24V3
ZD4
1A
5V
D27
D28
D29
D30
0.5A
M4DRVA
M4DRV/A
M4DRVB
M4DRV/B
220
RA55
CLM1
CLM2
IN1
IN2
IN3
IN4
OUT1
OUT2
OUT3
OUT4
M5266P
DRIVE1
DRIVE2
DRIVE3
DRIVE4
R153
R152
180
IC13
PGND
M4DRVA_O
M4DRV/A_O
M4DRVB_O
M4DRV/B_O
ZD7
D39
D40
D41
D42
M11CONT
M11DRVA/A
M11DRVB/B
TL425
TL426
TL427
TL428
IC52
HC08
HC04
IC55
RA58
R158
R159
IC16
M11DRVA_O
M11DRV/A_O
M11DRVB_O
M11DRV/B_O
ZD6
D38
D37
D36
D35
M18CONT
M18DRVA/A
M18DRVB/B
TL417
TL418
TL419
TL420
IC53
RA56
R157
R156
IC14
CN9
MX24D500
M18DRVA_O
M18DRV/A_O
M18DRVB_O
M18DRV/B_O
M18-24V
PS22IN
PS25IN
PS26IN
PS27IN
PS28IN
PS29IN
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
B1
B2
B3
B4
B5
B6
B7
B8
B9
B10
B11
B12
ZD5
D31
D32
D33
D34
M14CONT
M14DRVA/A
M14DRVB/B
TL421
TL422
TL423
TL424
RA57
R154
R155
IC15
M14DRVA_O
M14DRV/A_O
M14DRVB_O
M14DRV/B_O
R161
9.1K
R160
390
C116
1000P
C149
10U
25
IC17
STK6712
C115
100P
VCC
VREF1
VREF
SG
INA
IN-A
INB
IN-B
PGND
TD1
TD2
A
/A
B
/B
NC
2A
RA59
M13DRVA
M13DRV/A
M13DRVB
M13DRV/B
M13DRVA_O
M13DRV/A_O
M13DRVB_O
M13DRV/B_O

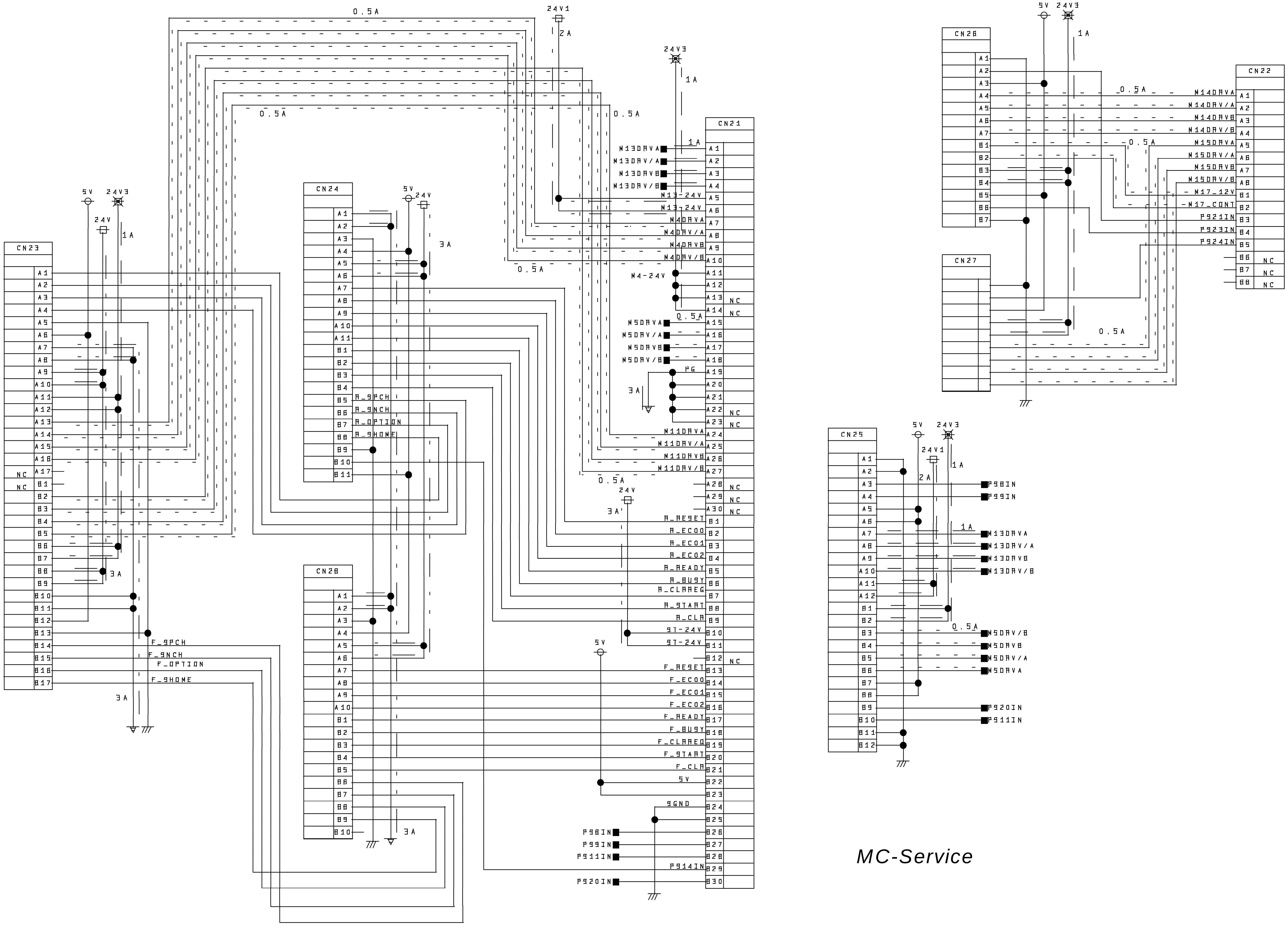
MC-Service

FS-108/FS-108BM CONTROL-BOARD CIRCUIT DIAGRAM (9/9)


By-pass condensers for each ICs
5V
CN7
CN6
M_TXD
M_REQ
S_ACK
M_RXD
M_ACK
S_REQ
R168 1.0K
R165 1.0K
R164 1.0K
R169 820
R163 820
R162 820
C120 100P
C121 100P
C122 100P
MC2840 DA4
MC2840 DA3
MC2840 DA2
R166 4.7K
IC21 HC14
TL429
TR10 N141C
TR11 N141C
TR12 N141C
24V
M19 24V6
SD4.5 24V5
SD1.2 MC201 24V4
PMSTEPM 24V3
M3 24V2
M2.8 24V1
SHEET_CUT 24V7
ICP15
ICP4
ICP3
ICP2
ICP11
ICP12
ICP14
6A
3A
1A
2A
24V TP9
R182 20
R181 5.1K
C142 4700P
R178 6.8K
TR13 2SC1815
TR14 2SJ176
ON:14V
R171 1.0K
18V ZD9
R179 4.7K
D59
R180 470
R170 10K
C2 22U 50
C139 10000P
C151 120U 50
R173 3.9K
R177 1.2K
R172 1.8K
ZD8
TL430
24VDEC
IC24 HC14
5V TP7
PG TP10
NF1
ICP6
C150 100U 25
C137 10000P
5G TP8
P.GND
ICP13
D43
IC50 uPC2933HF
IN OUT COM
C152 47U 50
C141 10000P
C140 10000P
12V
0.5A
PGND
IC20 LM358F TL431
IC40 HC32 TL432
IC32 LS07 TL433
IC29 LS07 TL434
IC23 HC14 TL435
IC23 HC14 TL436
IC37 TD62503F TL437
IC37 TD62503F TL438
IC37 TD62503F TL439
IC37 TD62503F TL440
IC52 HC08 TL441
IC52 HC08 TL442
IC33 C167 10000P
IC40 C134
IC56 C117
IC55 C113
IC53 C153
IC52 C159
IC47 C158
IC46 C157
IC45 C156
IC44 C155
IC43 C154
IC42 C161
IC39 C163
IC32 C132
IC31 C131
IC30 C119
IC29 C130
IC28 C129
IC27 C128
IC26 C127
IC25 C126
IC24 C125
IC23 C138
IC22 C123
IC21 C118
IC20 C133

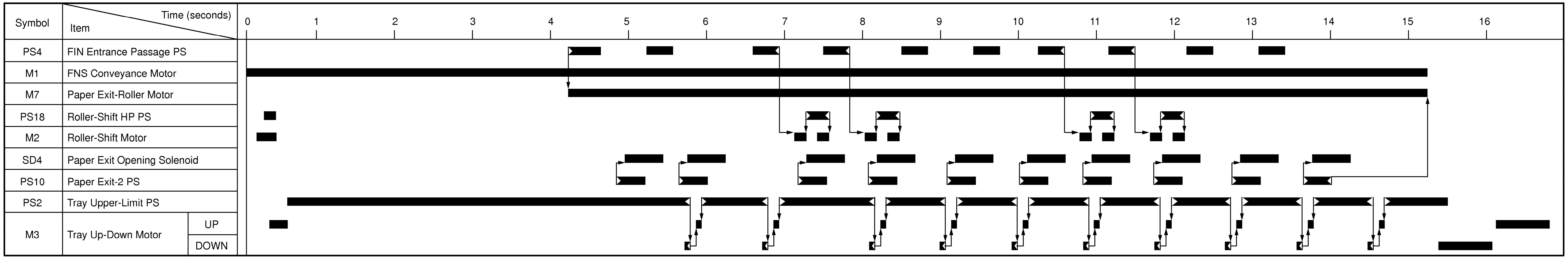
MC-Service

FS-108/FS-108BM CONNECTOR-BOARD CIRCUIT DIAGRAM


CN23
CN24
CN28
CN21
CN26
CN22
CN27
CN25
5V
24V
24V1
24V3
0.5A
1A
2A
3A
NC
F_SPCH
F_SNCH
F_OPTION
F_SHOME
R_SPCH
R_SNCH
R_OPTION
R_SHOME
M13DRVA
M13DRV/A
M13DRVB
M13DRV/B
M13-24V
M4DRVA
M4DRV/A
M4DRVB
M4DRV/B
M4-24V
M5DRVA
M5DRV/A
M5DRVB
M5DRV/B
FG
M11DRVA
M11DRV/A
M11DRVB
M11DRV/B
R_RESET
R_ECO0
R_ECO1
R_ECO2
R_READY
R_BUSY
R_CLRREQ
R_START
R_CLR
ST-24V
F_RESET
F_ECO0
F_ECO1
F_ECO2
F_READY
F_BUSY
F_CLRREQ
F_START
F_CLR
SGND
PS8IN
PS9IN
PS11IN
PS14IN
PS20IN
M14DRVA
M14DRV/A
M14DRVB
M14DRV/B
M15DRVA
M15DRV/A
M15DRVB
M15DRV/B
M17_12V
M17_CONT
PS21IN
PS23IN
PS24IN
3A'

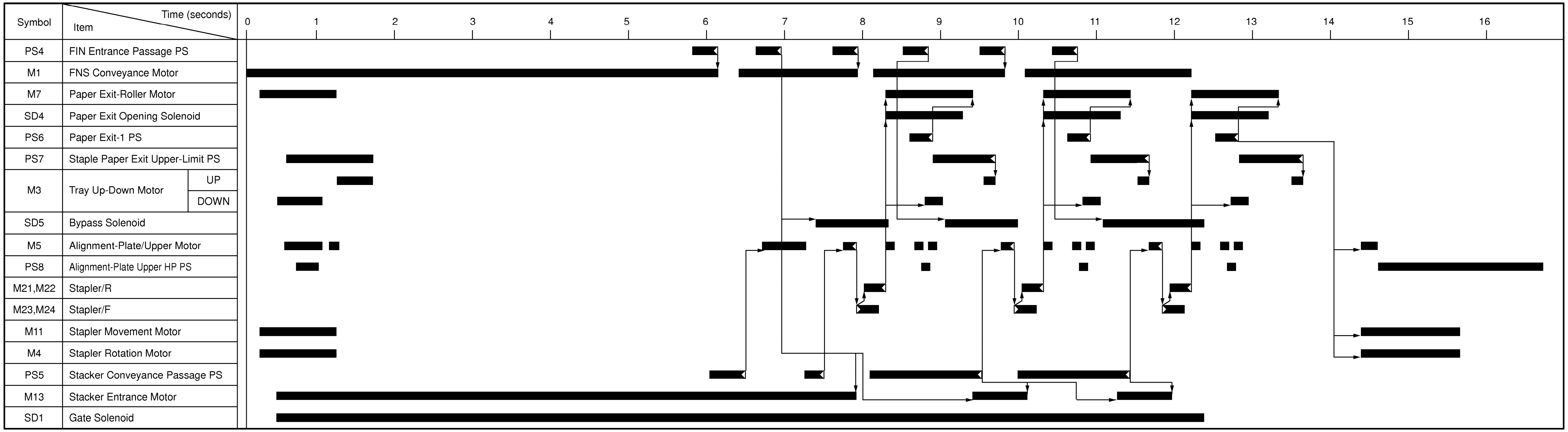
MC-Service

FS-108/FS-108BM TIMING CHART (SORT MODE, A4, 2-PAGE ORIGINAL, 5 COPIES, 1:1 RATIO)

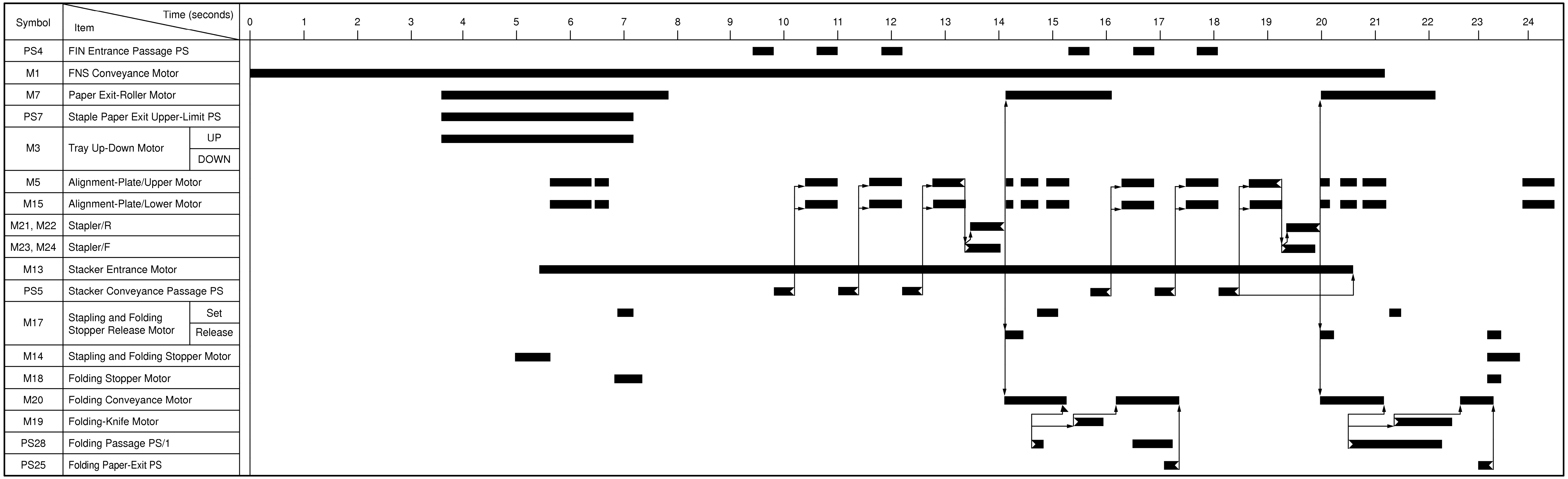


MC-Service

FS-108/FS-108BM TIMING CHART (2-STAPLE MODE, A4, 2-PAGE ORIGINAL, 3 COPIES, 1:1 RATIO)



FS-108/FS-108BM TIMING CHART (STAPLING AND FOLDING, A4R, 3-PAGE ORIGINAL, 2 COPIES, 1:1 RATIO, 1-1 MODE)



Konica

LT-352

SERVICE HANDBOOK

Jul. 1999
Ver. 1.0

KONICA CORPORATION
TECHNOLOGY SUPPORT CENTER
TOKYO JAPAN

CONTENTS

SAFETY AND IMPORTANT WARNING ITEMS ....
Refer to the 7065 service handbook on page C-1

1. LT-352

LT-352 PRODUCT SPECIFICATIONS 1-1
CENTER CROSS-SECTIONAL DRAWING 1-2
DRIVE SECTION 1-3
PAPER FEED SECTION 1-5
[1] Composition 1-5
[2] Mechanisms 1-5
[3] Disassembly and Reassembly 1-6
[4] Centering adjustment of LT-352 1-10

2. DIAGRAMS

LT-352 ELECTRICAL PARTS LAYOUT DRAWING .. 2-1
LT-352 CONNECTOR LAYOUT DRAWING 2-2
LT-352 OVERALL WIRING DIAGRAM 2-3

This section covers the structure, functions, operation and method of disassembling and assembling the machine.
Observe the following precautions when performing disassembly and assembly work.

1. Be sure to unplug the power cord before working on the machine.
2. Perform all reassembly work by reversing the order in which the component was disassembled, unless otherwise specified.
3. Do not lose small parts (screws, etc.) or insert them in the wrong place.
4. Install all parts completely before operating the machine.
5. Do not loosen the screws indicated as disallowed for removal.

1

LT-352

LT-352 PRODUCT SPECIFICATIONS

1. Type

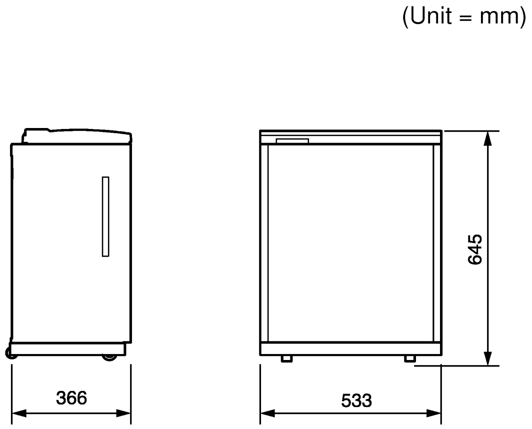
Type: Large capacity paper feed tray mounted on side of the main body.

2. Functions

Paper size:	A4, 8.5" x 11"
Kind of paper:	High quality paper (60 g/m^2 - 90 g/m^2)
Maximum capacity:	3500 sheets (80 g/m^2)

3. Machine Data

Power supply:	5, 24 and 40 VDC (Supplied from the main body.)
Maximum power consumption:	82 VA
Weight:	Approx. 26.6 kg
Machine dimensions:	W 366 x D 553 x H 645



4. Maintenance

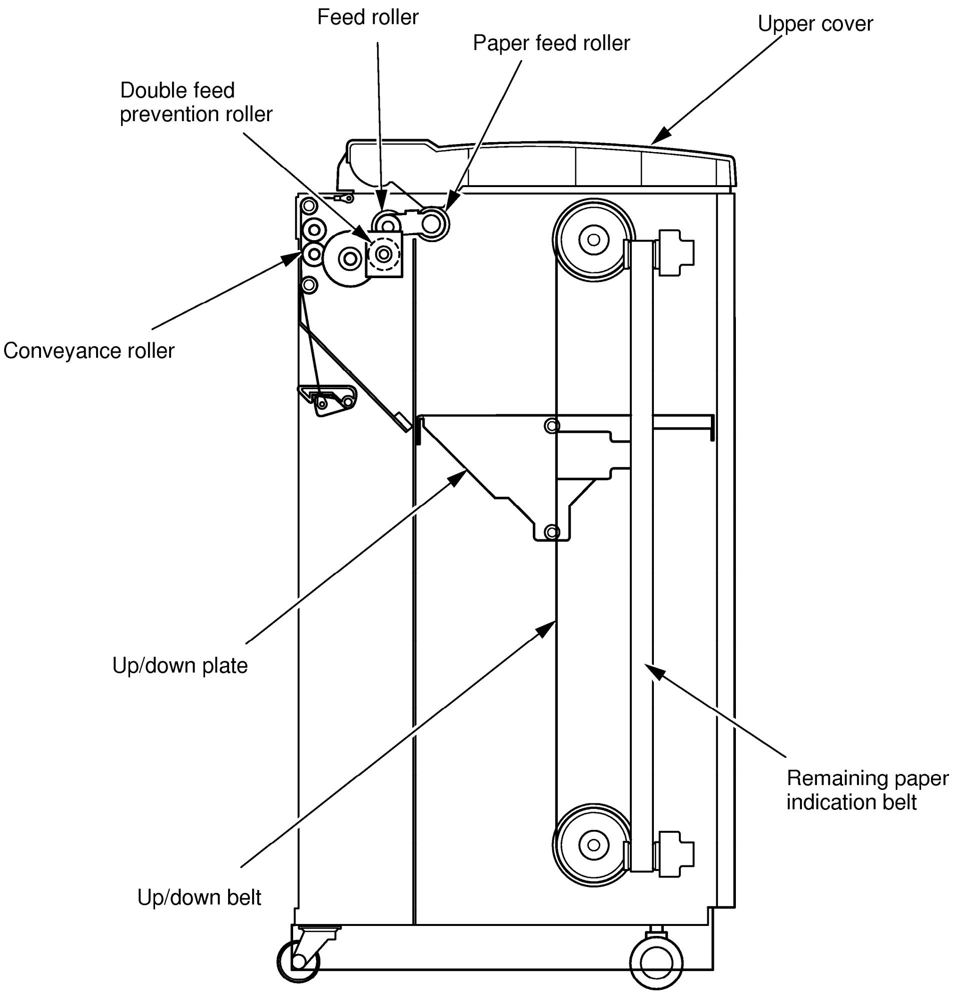
Maintenance: Same as the main body
Machine life: Same as the main body

5. Operating Environment

Temperature: 10 to 33°C
Humidity: 10 to 80%RH

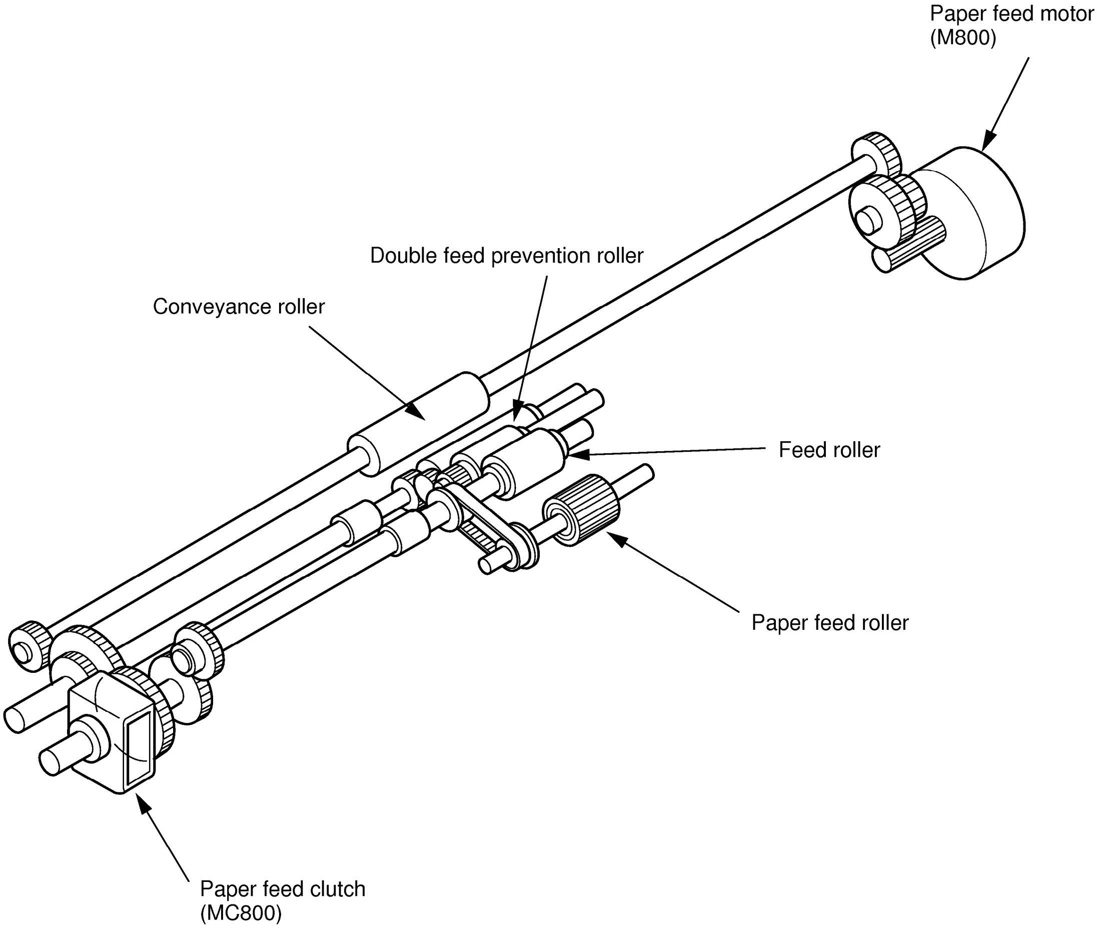
Note: The contents of this manual may be changed without prior notice for the sake of improvement.

CENTER CROSS-SECTIONAL DRAWING

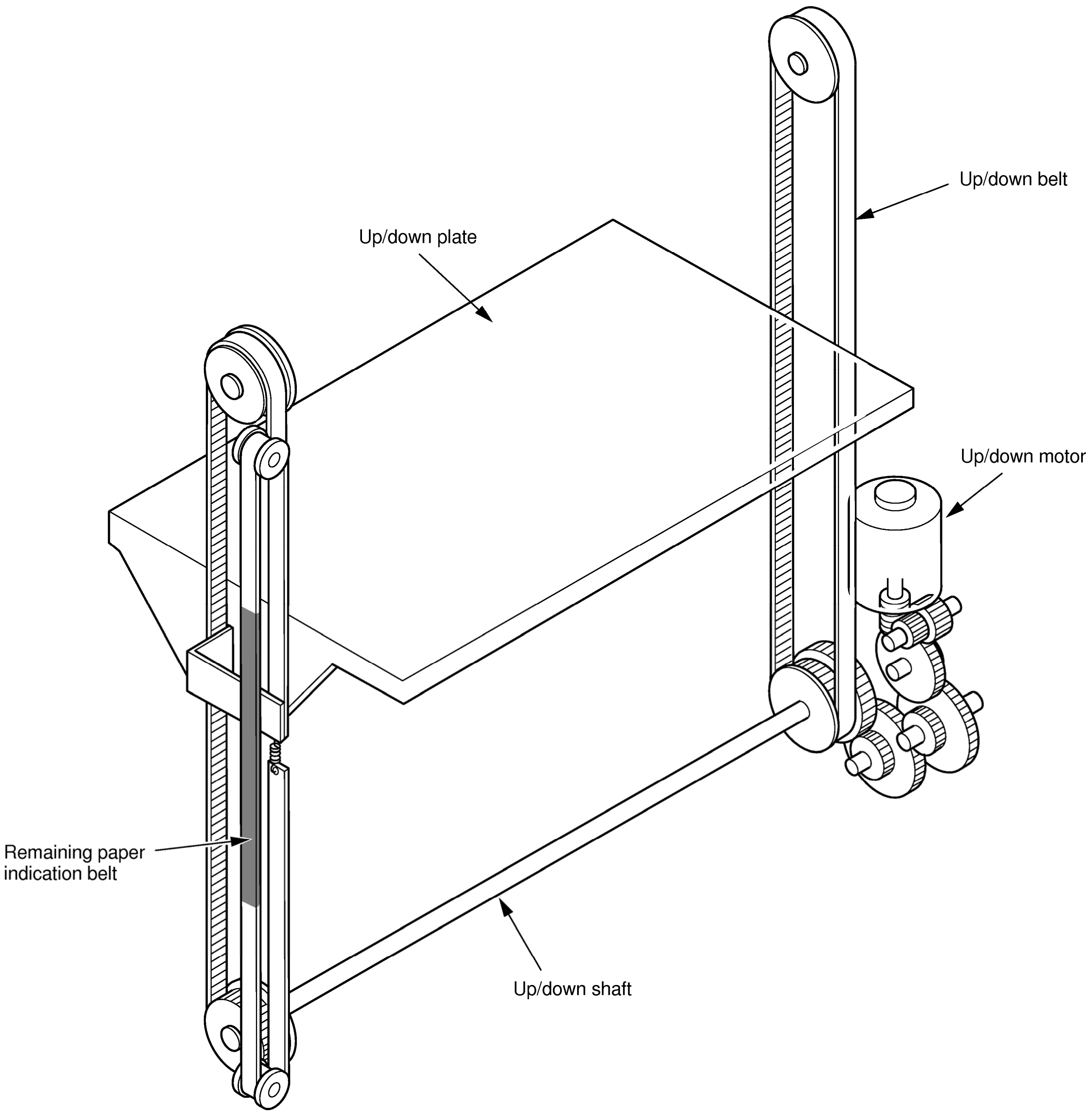

Feed roller
Paper feed roller
Upper cover
Double feed prevention roller
Conveyance roller
Up/down plate
Remaining paper indication belt
Up/down belt

DRIVE SECTION

<Conveyance drive section>

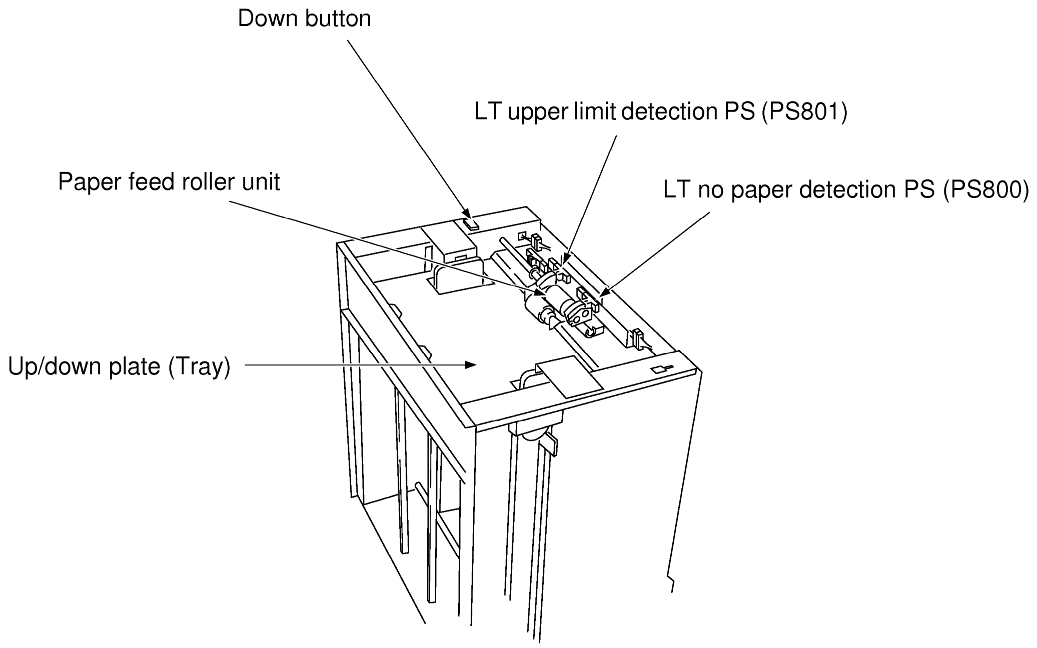

Paper feed motor
(M800)
Double feed prevention roller
Conveyance roller
Feed roller
Paper feed roller
Paper feed clutch
(MC800)

<Stacker drive section>


Up/down belt
Up/down plate
Up/down motor
Remaining paper indication belt
Up/down shaft

PAPER FEED SECTION

[1] Composition


Down button
LT upper limit detection PS (PS801)
Paper feed roller unit
LT no paper detection PS (PS800)
Up/down plate (Tray)

[2] Mechanisms

	Mechanism	Method
*1	Paper lifting	Belt drive
	Paper feed	1st paper feed roller
	No paper detection	PS800
	Paper size detection	None
*2	Remaining paper indicator	Linked to up/down plate
	Paper conveyance	Roller conveyance
	Paper size	A4, 8.5" x 11"

***1: Paper lifting**

a. Lifting operation of the up/down plate

The up/down plate is lifted by belt drive.

When the upper cover is closed, the up/down plate drive motor (M801) rotates, causing the up/down plate coupled to the up/down drive belt to raise.

b. Lowering operation of the up/down plate

When the upper cover is opened, the up/down plate automatically falls 100 mm.

Subsequently, each time the down button is pressed, the up/down plate falls a distance equal to the height of the loaded paper.

***2: Remaining paper indicator**

The amount of paper remaining in the paper tray can be judged from the state of the indicator belt that is visible from the front slit.

The indicator belt is directly linked to the up/down motion of the up/down plate.

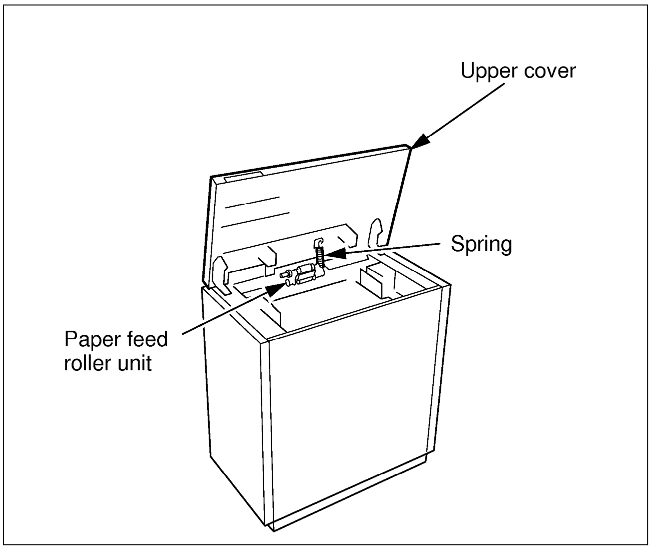
[3] Disassembly and Reassembly

1. Removing and Re-installing the Paper Feed roller Unit

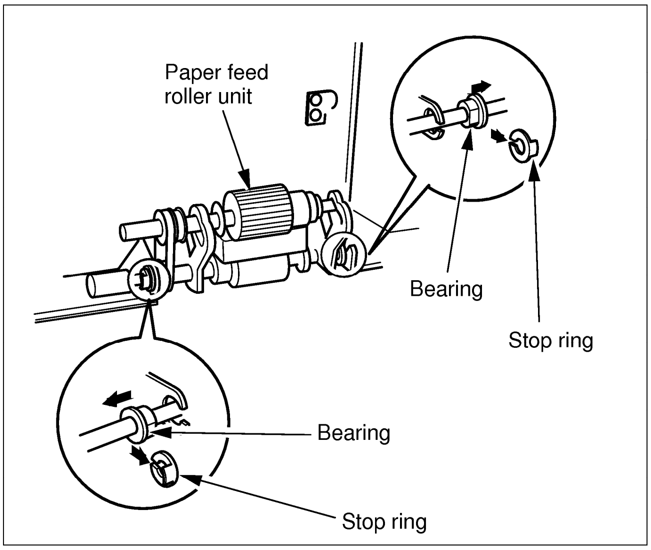
a. Procedure

(1) Open the upper cover.

(2) Remove the spring from the paper feed roller unit.


Upper cover
Spring
Paper feed roller unit

(3) Remove the two stop rings and the two bearings, then remove the paper feed roller unit.


Paper feed roller unit
Bearing
Stop ring
Bearing
Stop ring

(4) Re-install the paper feed roller in the opposite sequence to removal.

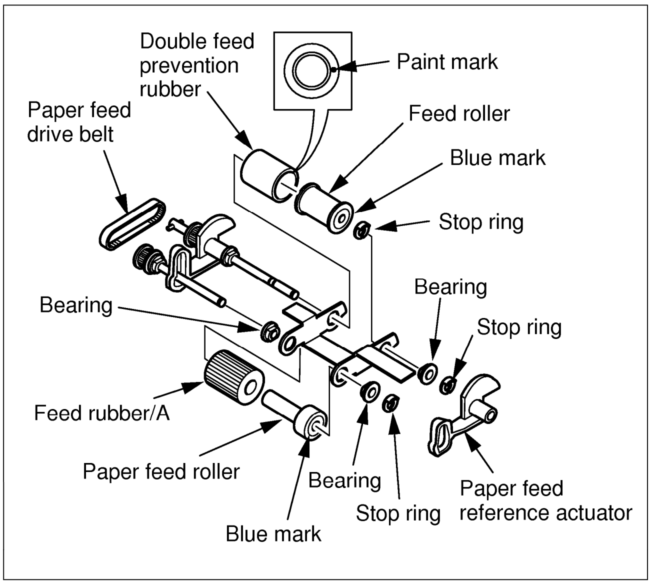
2. Replacing the paper feed roller Rubber and the Feed roller Rubber

a. Procedure

(1) Remove the paper feed roller unit.

(2) Remove the three stop rings and the three bearings on the paper feed roller unit, and also the paper feed reference actuator and the two shafts, then remove each roller.

(3) Remove the rubber (feed rubber/A and double feed prevention rubber) from each roller.


Double feed prevention rubber
Paint mark
Paper feed drive belt
Feed roller
Blue mark
Stop ring
Bearing
Bearing
Stop ring
Feed rubber/A
Paper feed roller
Bearing
Stop ring
Paper feed reference actuator
Blue mark

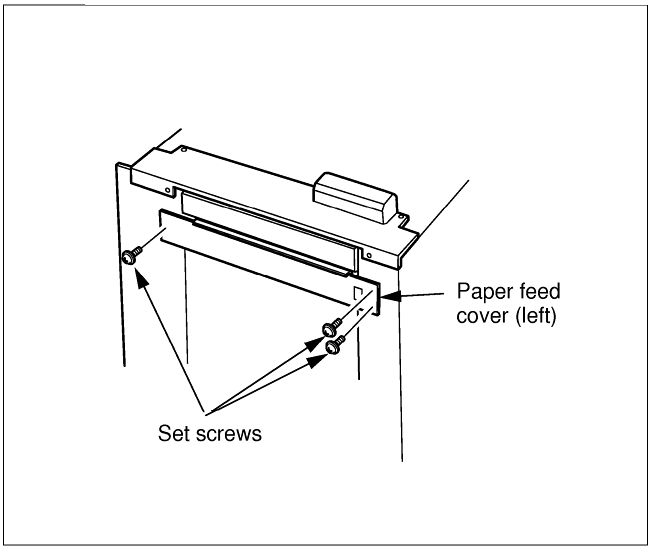
(4) Re-install the above parts in the opposite sequence to removal.

Caution: Ensure that the mounting direction of the rubber and rollers are correct.

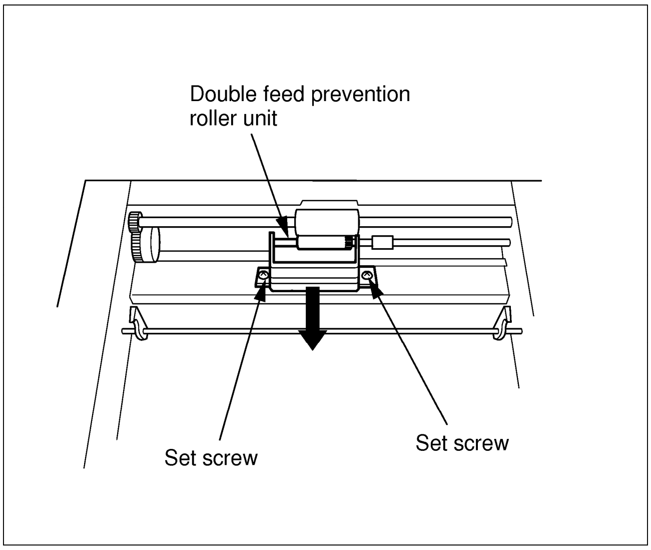
3. Replacing the Double feed prevention roller rubber

a. Procedure

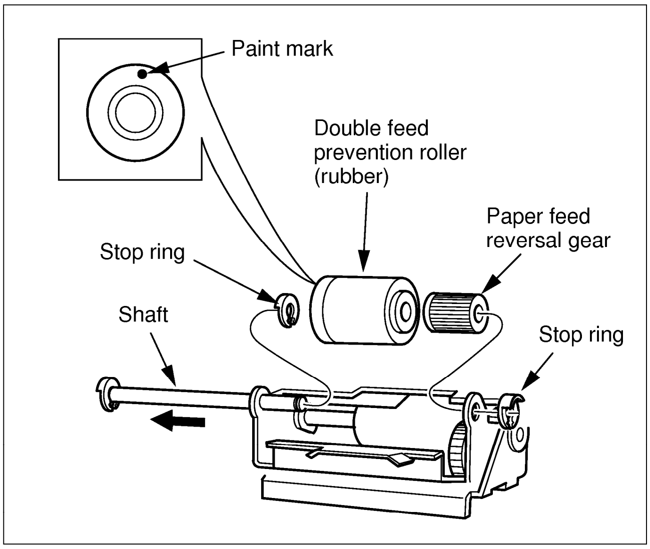
(1) Remove the three set screws, then remove the paper feed cover (left).


Paper feed cover (left)
Set screws

(2) Remove the two set screws, then remove the double feed prevention roller unit. (When re-installing the unit, align the drive coupling pin, then insert the two projections on the unit into the square holes before fixing the two set screws.


Double feed prevention roller unit
Set screw
Set screw

(3) Remove the two stop rings, then pull out the shaft and remove the double feed prevention roller together with the paper feed reversal gear.


Paint mark
Double feed prevention roller (rubber)
Paper feed reversal gear
Stop ring
Shaft
Stop ring

(4) Remove the double feed prevention rubber from the double feed prevention roller.

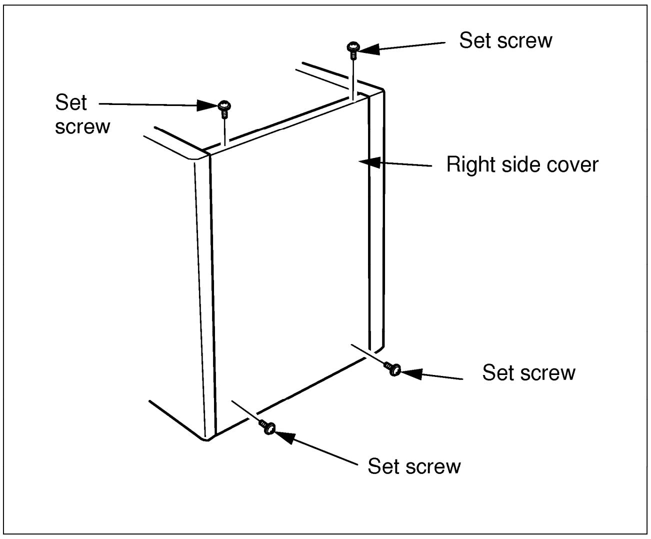
(5) Re-install the above parts in the opposite sequence to removal.

Caution: Ensure that the mounting direction of the rubber is correct.

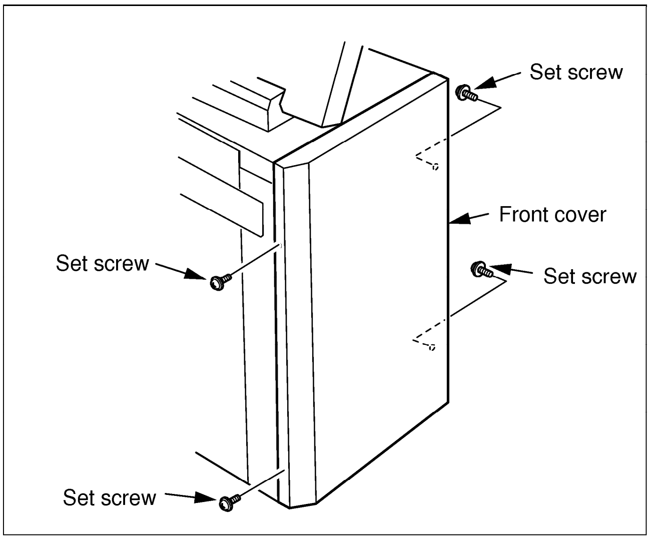
4. Replacing the LT Clutch

a. Procedure

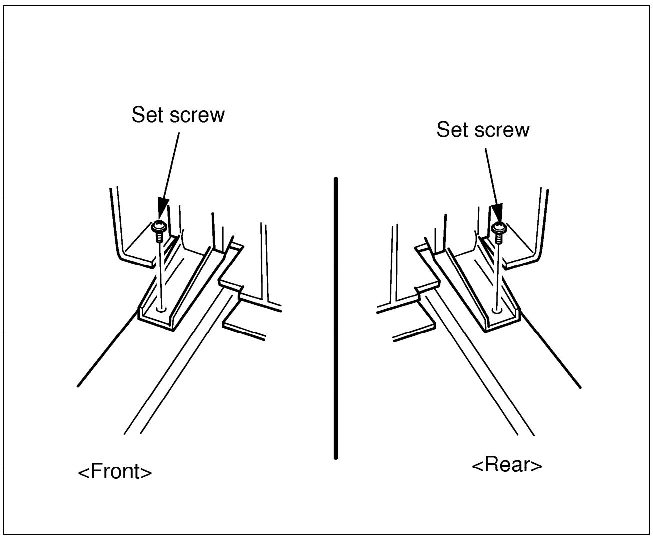
(1) Remove the four set screws, then remove the right side cover.


Set screw
Set screw
Right side cover
Set screw
Set screw

(2) Remove the four set screws, then remove the front cover.

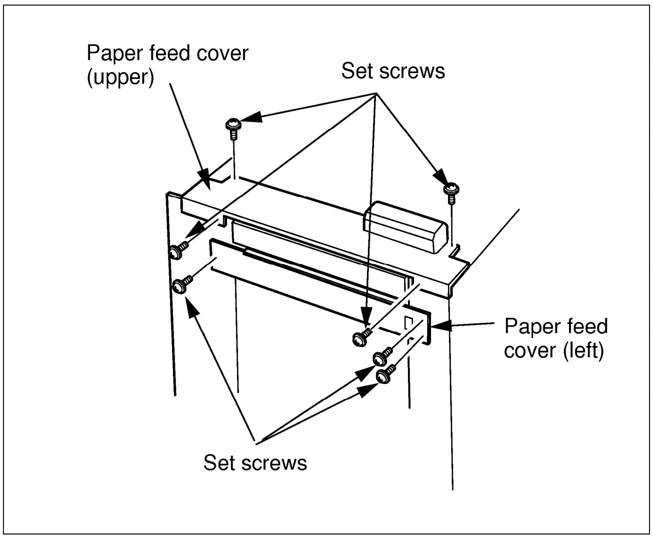

Set screw
Front cover
Set screw
Set screw
Set screw

(3) Remove the two set screws, then remove the upper cover.

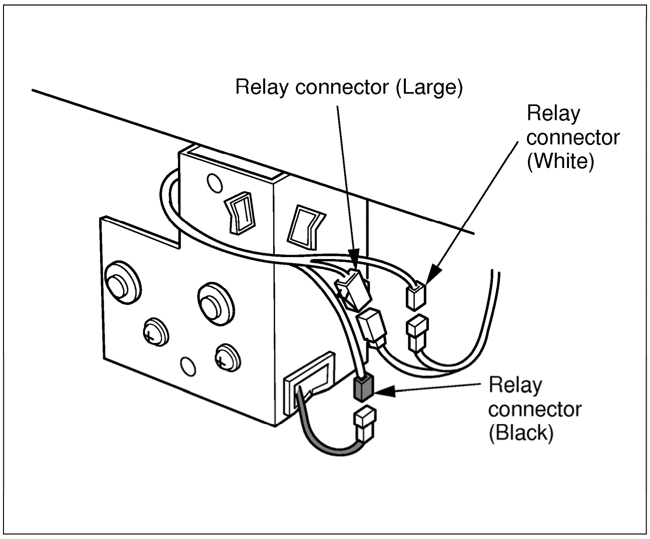

Set screw
Set screw
<Front>
<Rear>

(4) Remove the four set screws, then remove the paper feed cover (upper).

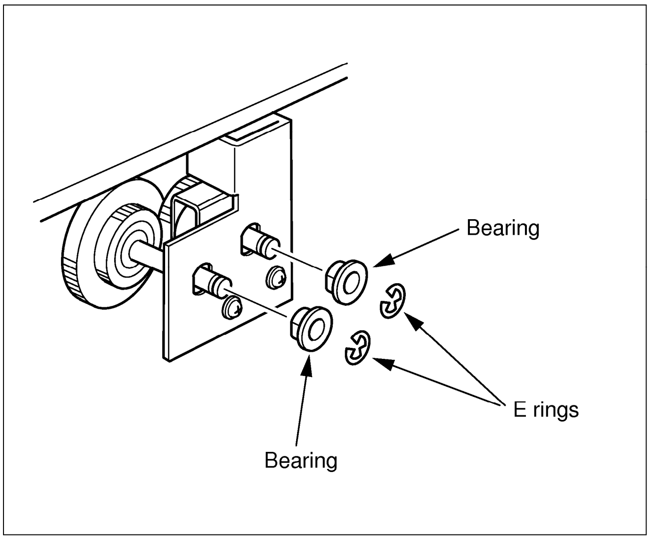
(5) Remove the three set screws, then remove the paper feed cover (left).


Paper feed cover (upper)
Set screws
Paper feed cover (left)
Set screws

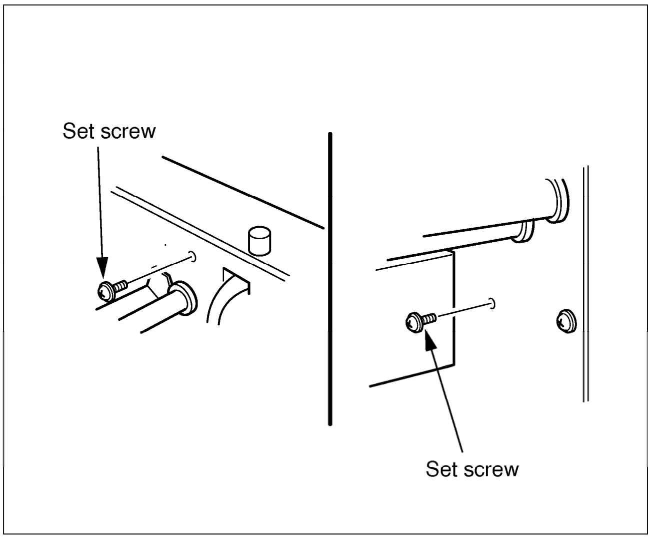
(6) Disconnect the three relay connectors.


Relay connector (Large)
Relay connector (White)
Relay connector (Black)

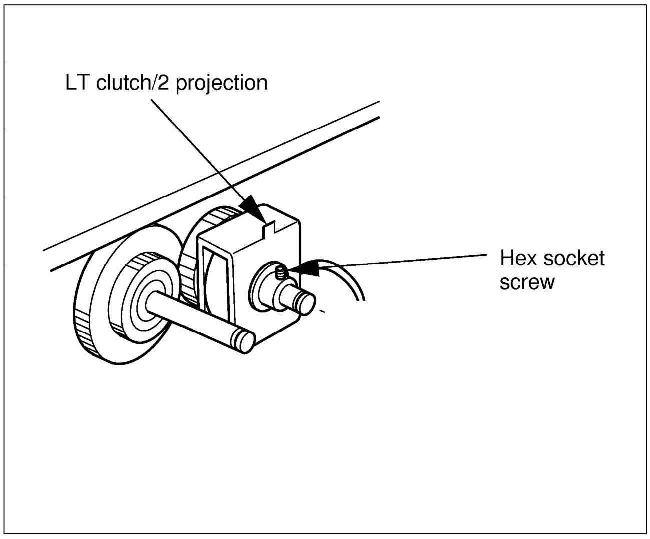
(7) Remove the two E rings, then remove the two bearings.


Bearing
E rings
Bearing

(8) Remove the two set screws fixing the clutch cover from the rear.


Set screw
Set screw

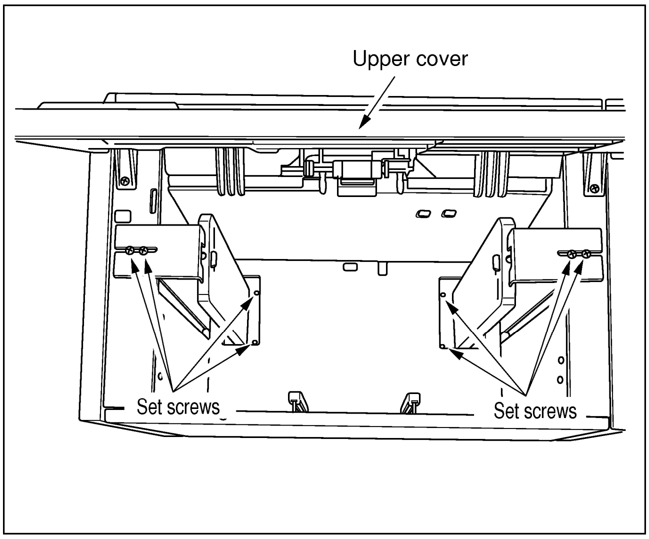
(9) Remove the hex socket screw, then remove LT clutch/2.


LT clutch/2 projection
Hex socket screw

(10) Re-install the above parts in the opposite sequence to removal.

Note: When re-installing the LT clutch, ensure that the projection is at the top.

[4] Centering adjustment of LT-352

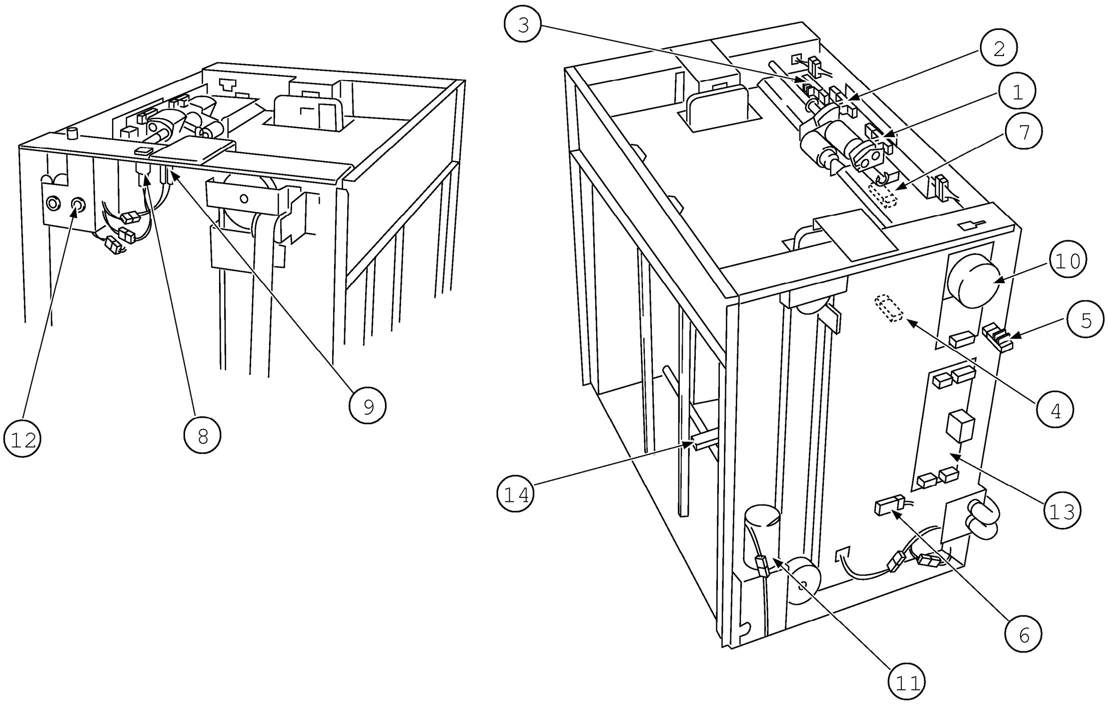


Step	Operation
1	Open the upper cover.
2	Slacken the side guide set screws (four each) at the front and rear of the tray.
3	Move each side guide back and forth until the miscentering of the paper is within the standard value range. (Move both guides by the same amount, using the stamped marks on the guide reinforcing plates (front/rear) and the LCT base plate below them as a rough guide.)
4	Tighten the eight adjustment screws firmly, and perform the centering adjustment for the 36 mode.
5	Repeat 1~4 until the miscentering value is within the standard.

2

DIAGRAMS

LT-352 ELECTRICAL PARTS LAYOUT DRAWING



1. Switch/Sensor

①	PS800	LT no paper detection PS
②	PS801	LT upper limit detection PS
③	PS802	LT pre try PS
④	PS803	LT conveyance PS
⑤	PS804	LT release PS
⑥	PS805	LT lower limit detection PS
⑦	PS806	LT pre feed PS
⑧	SW800	LT down SW
⑨	SW801	LT cover open/close SW

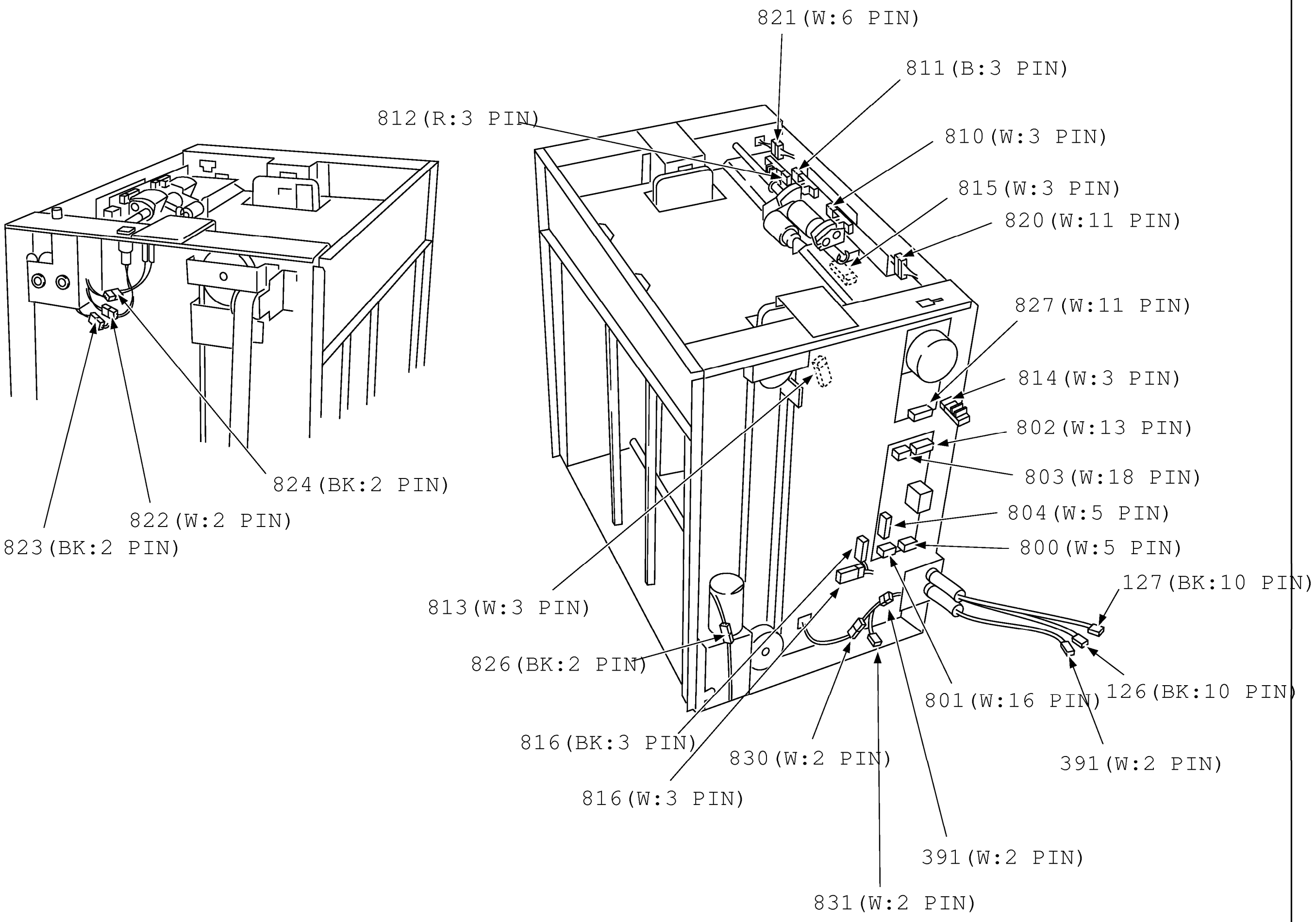
2. Load

⑩	M800	LT paper feed Motor
⑪	M801	LT up/down Motor
⑫	MC800	LT 1st paper feed MC

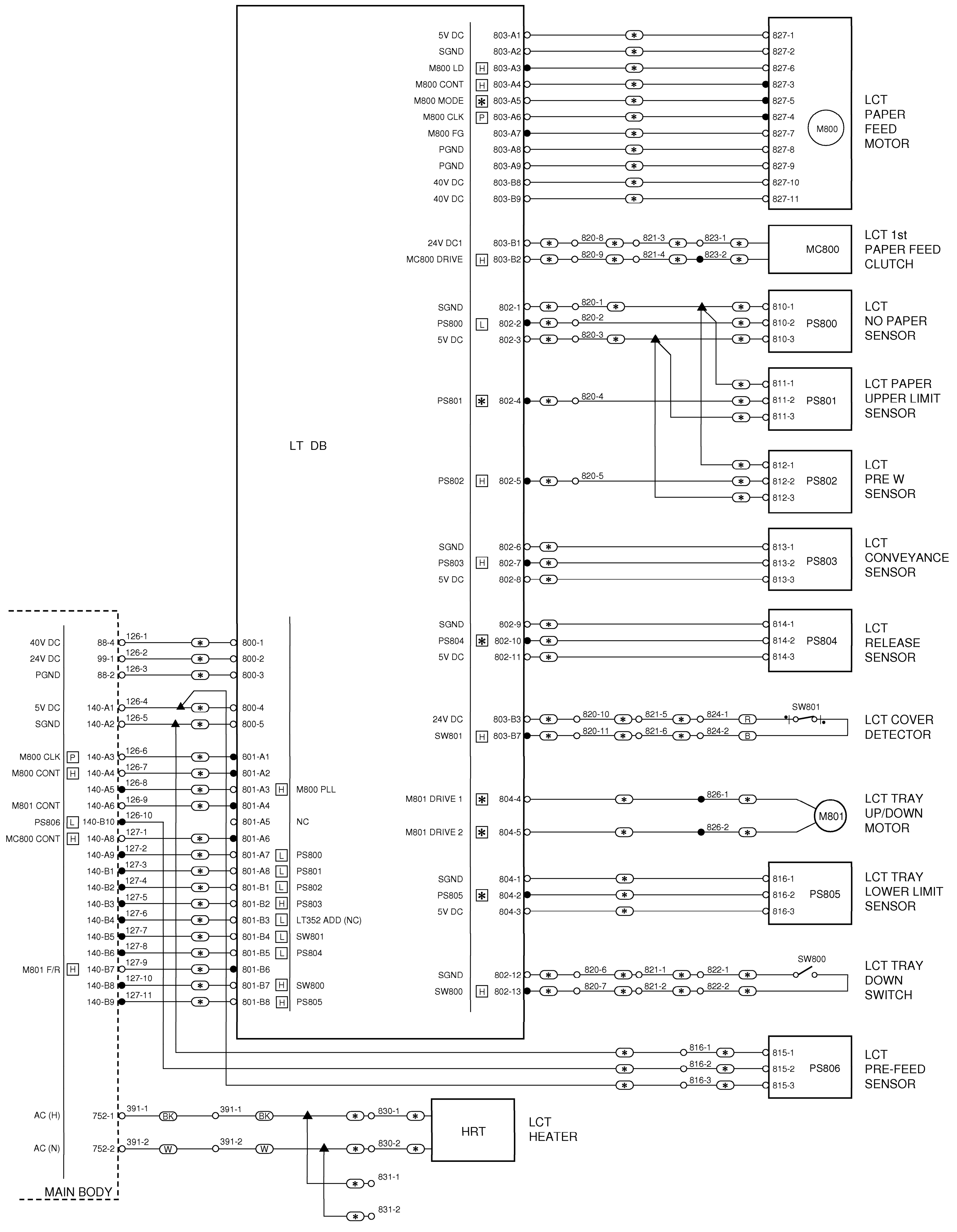
3. Others

⑬	LT CB	LT control board
⑭	HTR	Heater

LT-352 CONNECTOR LAYOUT DRAWING


821(W:6 PIN)
811(B:3 PIN)
812(R:3 PIN)
810(W:3 PIN)
815(W:3 PIN)
820(W:11 PIN)
827(W:11 PIN)
814(W:3 PIN)
802(W:13 PIN)
803(W:18 PIN)
804(W:5 PIN)
800(W:5 PIN)
127(BK:10 PIN)
824(BK:2 PIN)
822(W:2 PIN)
823(BK:2 PIN)
813(W:3 PIN)
826(BK:2 PIN)
801(W:16 PIN)
126(BK:10 PIN)
816(BK:3 PIN)
830(W:2 PIN)
391(W:2 PIN)
816(W:3 PIN)
391(W:2 PIN)
831(W:2 PIN)

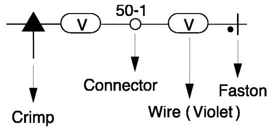
LT-352 OVERALL WIRING DIAGRAM


LT DB
5V DC 803-A1 827-1
SGND 803-A2 827-2
M800 LD H 803-A3 827-6
M800 CONT H 803-A4 827-3
M800 MODE * 803-A5 827-5
M800 CLK P 803-A6 827-4
M800 FG 803-A7 827-7
PGND 803-A8 827-8
PGND 803-A9 827-9
40V DC 803-B8 827-10
40V DC 803-B9 827-11
M800
LCT PAPER FEED MOTOR
24V DC1 803-B1 820-8 821-3 823-1
MC800 DRIVE H 803-B2 820-9 821-4 823-2
MC800
LCT 1st PAPER FEED CLUTCH
SGND 802-1 820-1 810-1
PS800 L 802-2 820-2 810-2
5V DC 802-3 820-3 810-3
PS800
LCT NO PAPER SENSOR
PS801 * 802-4 820-4 811-1 811-2 811-3
PS801
LCT PAPER UPPER LIMIT SENSOR
PS802 H 802-5 820-5 812-1 812-2 812-3
PS802
LCT PRE W SENSOR
SGND 802-6 813-1
PS803 H 802-7 813-2
5V DC 802-8 813-3
PS803
LCT CONVEYANCE SENSOR
SGND 802-9 814-1
PS804 * 802-10 814-2
5V DC 802-11 814-3
PS804
LCT RELEASE SENSOR
24V DC 803-B3 820-10 821-5 824-1 R
SW801 H 803-B7 820-11 821-6 824-2 B
SW801
LCT COVER DETECTOR
M801 DRIVE 1 * 804-4 826-1
M801 DRIVE 2 * 804-5 826-2
M801
LCT TRAY UP/DOWN MOTOR
SGND 804-1 816-1
PS805 * 804-2 816-2
5V DC 804-3 816-3
PS805
LCT TRAY LOWER LIMIT SENSOR
SGND 802-12 820-6 821-1 822-1
SW800 H 802-13 820-7 821-2 822-2
SW800
LCT TRAY DOWN SWITCH
816-1 815-1
816-2 815-2
816-3 815-3
PS806
LCT PRE-FEED SENSOR
40V DC 88-4 126-1 800-1
24V DC 99-1 126-2 800-2
PGND 88-2 126-3 800-3
5V DC 140-A1 126-4 800-4
SGND 140-A2 126-5 800-5
M800 CLK P 140-A3 126-6 801-A1
M800 CONT H 140-A4 126-7 801-A2
140-A5 126-8 801-A3 H M800 PLL
M801 CONT 140-A6 126-9 801-A4
PS806 L 140-B10 126-10 801-A5 NC
MC800 CONT H 140-A8 127-1 801-A6
140-A9 127-2 801-A7 L PS800
140-B1 127-3 801-A8 L PS801
140-B2 127-4 801-B1 L PS802
140-B3 127-5 801-B2 H PS803
140-B4 127-6 801-B3 L LT352 ADD (NC)
140-B5 127-7 801-B4 L SW801
140-B6 127-8 801-B5 L PS804
M801 F/R H 140-B7 127-9 801-B6
140-B8 127-10 801-B7 H SW800
140-B9 127-11 801-B8 H PS805
AC (H) 752-1 391-1 BK 391-1 BK 830-1
AC (N) 752-2 391-2 W 391-2 W 830-2
831-1
831-2
HRT
LCT HEATER
MAIN BODY

[How to see the diagram]

1. The signals shown reflect levels present under normal idleing conditions with the main switch turned ON.
2. Wiring symbols in the figure are as follows.

(1) [Symbol]


V
50-1
V
Crimp
Connector
Wire (Violet)
Faston

(2) [Color code]

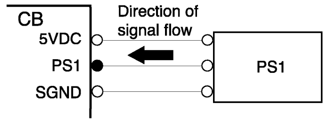
BN - Brown
R - Red
O - Orange
Y - Yellow
GN - Green
LB - Light blue

B - Blue
V - Violet
GY- Gray
W - White
BK- Black
P - Pink

Example: (Y/GN) represents green yellow striped pattern.

(3) (RC) is ribbon cable.

(4) Signal flow
The solid black circle (●) among the connector symbols (○) indicates the direction of signal flow.
Example)


CB
5VDC
PS1
SGND
Direction of signal flow
PS1

Konica

PI-108

SERVICE HANDBOOK

Sep.1999
Ver.1.0

KONICA CORPORATION
TECHNOLOGY SUPPORT CENTER
TOKYO JAPAN

CONTENTS

SAFETY AND IMPORTANT WARNING ITEMS ....

Refer to the 7065 service handbook on page C-1

1. PI-108

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EXTERNAL SECTION 1-3
- [1] Composition 1-3
- [2] Disassembly and Reassembly 1-3

DRIVE SYSTEM DIAGRAM 1-4
PAPER FEED UNIT 1-5
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2. DIAGRAM

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PI-108 TIMING CHART (AUTO-FEED[ONLINE], 2 STAPLE,A4,2-PAGE ORIGINAL,2 COPIES) ... 2-8

This section covers the structure,functions,operation and method of disassembling and assembling the machine.
Observe the following precautions when performing disassembly and assembly work.

1. Be sure to unplug the power cord before working on the machine.
2. Perform all reassembly work by reversing the order in which the component was disassembled,unless otherwise specified.
3. Do not lose small parts (screws,etc.) or insert them in the wrong place.
4. Install all parts completely before operating the machine.
5. Do not loosen the screws indicated as disallowed for removal.

1

PI-108

PI-108 PRODUCT SPECIFICATIONS

1. Type

Sheet feeder employing torque-limiter separation

2. Functions

Automatic sheet feed (online operation)

The PI-108 automatically feeds sheets into the finisher in accordance with instructions from the copier.

Manual sheet feed (offline operation)

User feeds sheets into finisher by operating the PI-108 controls.

User can select from three finishing modes.

- Booklet mode (available only if mounted to the FS-108BM)
- Single-staple mode (staple at rear)
- Two-staple mode (flat stapling)

Copy paper

Plain paper

(high-quality paper, recycled paper, etc.)

($60g/m^2$ to $90g/m^2$)

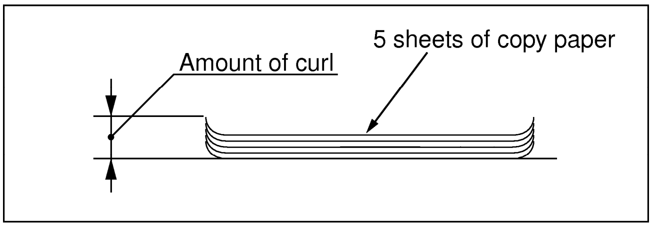
Special paper

- OHP film
- Label paper
- Blueprint master paper
- 50 to $59g/m^2$ high-quality paper
- 91 to $200g/m^2$ high-quality paper

Printing paper

- Double-sided art paper
- Mat paper
- High-quality paper

Copy sizes:	A3R, B4R, A4R, A4, B5, A5
Paper staking capacity:	Up to 200 sheets (when using $130g/m^2$-equivalent paper), to max. height of 40mm
Paper curling:	Max. 10mm



3. Power, Weight, Dimensions

Power Source:	24VDC, 5VDC (supplied from finisher)
Maximum power:	Max. 25VA
Weight:	PI-108: Approx. 7kg

External dimensions:

PI-108: Approx. 330(W) x 120(H) x 456(D) (mm)

4. Maintenance

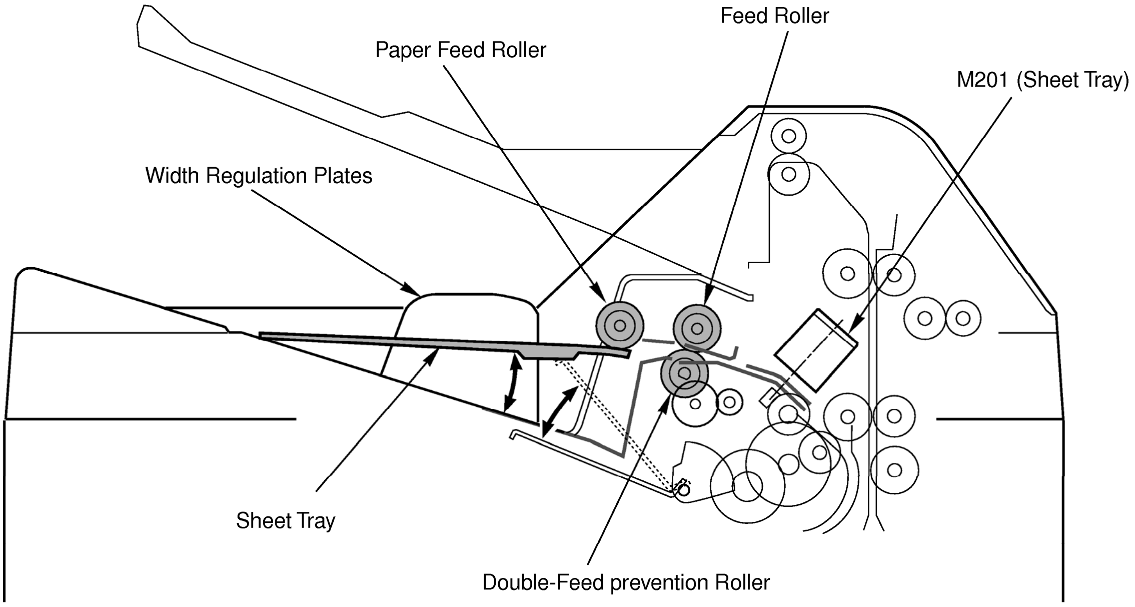
Maintenance:	Same as for the main body.
Service life:	Same as the main body.

5. Machine Operating Environment

Temperature:	10 to 30˚C
Humidity:	10 to 80% RH

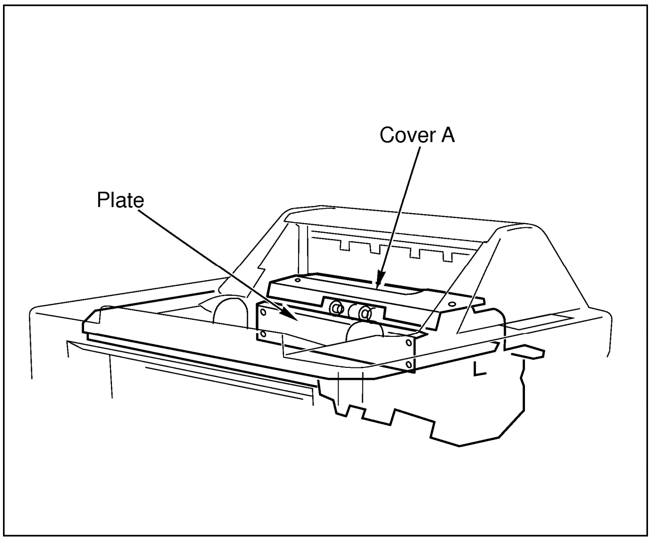
These specifications are subject to change without notice.

CENTER CROSS SECTION


Feed Roller
Paper Feed Roller
M201 (Sheet Tray)
Width Regulation Plates
Sheet Tray
Double-Feed prevention Roller

EXTERNAL SECTION

[1] Composition



[2] Disassembly and Reassembly

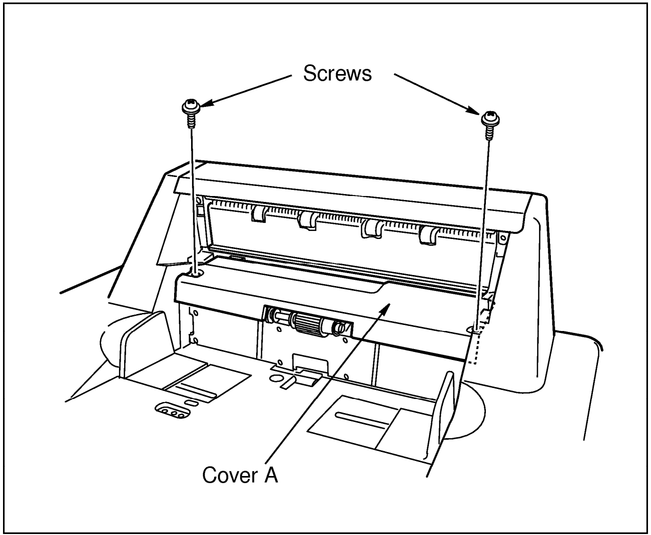
⚠ **CAUTION:** Be sure that the power cord has been unplugged from the outlet.

1. Removing and Installing the Cover A

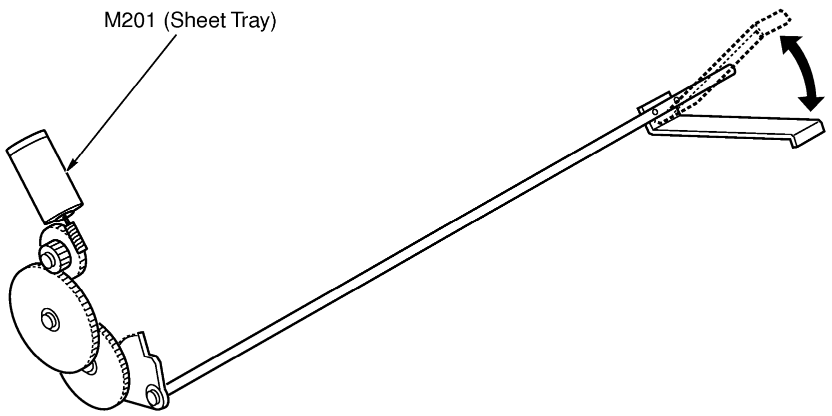
a. Procedure

(1) Remove the sub-tray.

(2) Remove the 2 screws and remove the cover A.

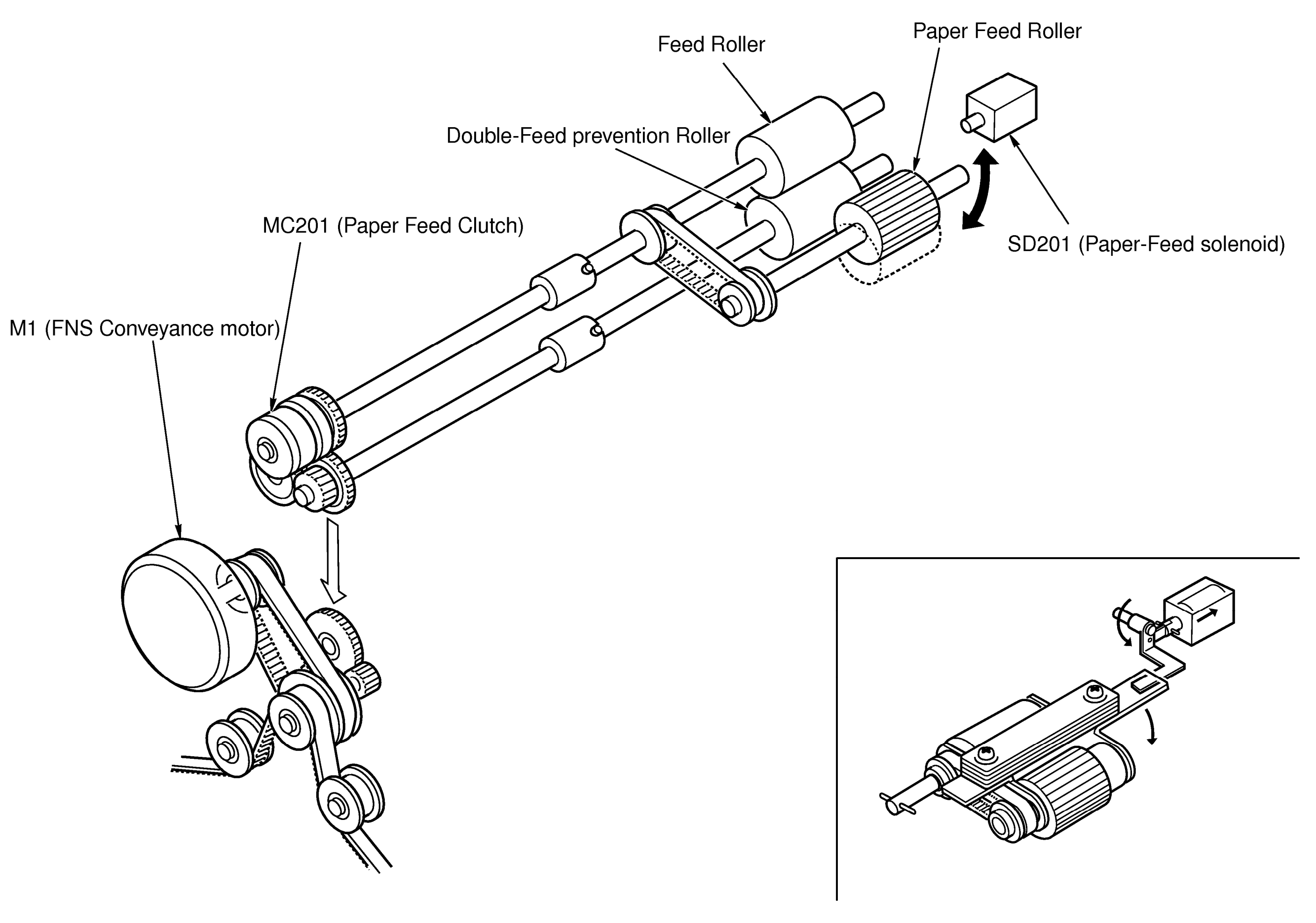


DRIVE SYSTEM DIAGRAM


M201 (Sheet Tray)

PAPER FEED UNIT

[1] Composition


Feed Roller
Paper Feed Roller
Double-Feed prevention Roller
MC201 (Paper Feed Clutch)
SD201 (Paper-Feed solenoid)
M1 (FNS Conveyance motor)

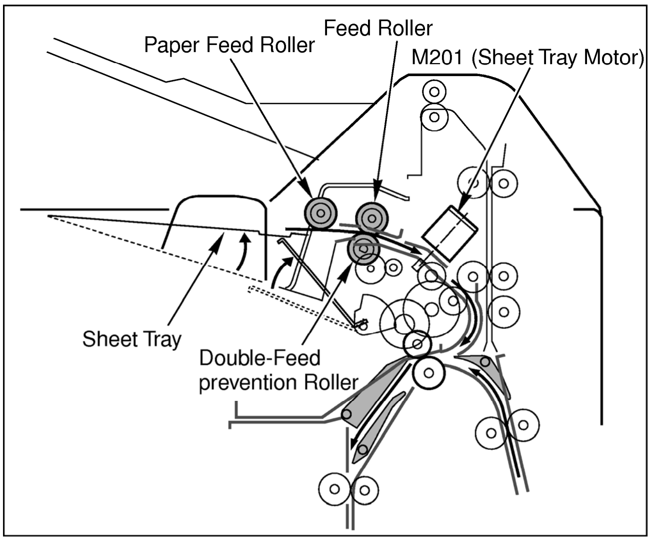
[2] Mechanisms

Mechanism	Method
Paper Feed	Automatic Conveyance (Top feeding)
Double-Feed Prevention	Double-Feed prevention Roller
Sheet Width Detection	VRI

1. Automatic Sheet Feeding (online operation)

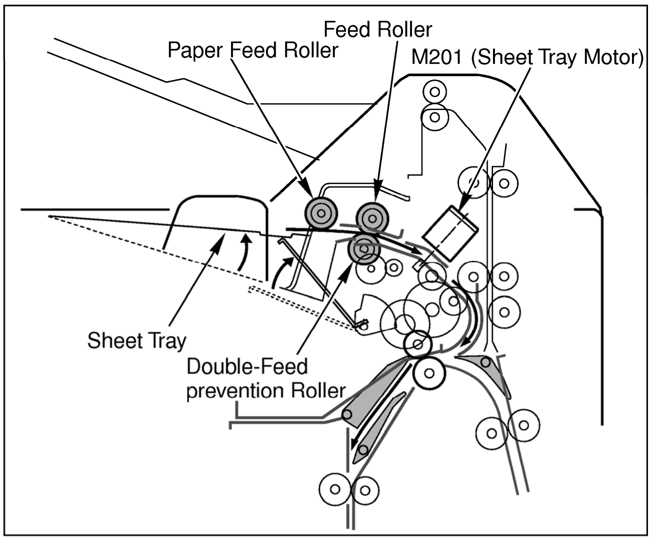
M201 (sheet tray motor) raises the sheet tray. SD201 (paper feed solenoid) and MC201 (paper-feed clutch) goes on, causing the paper-feed, feed, and double-feed-prevention rollers to turn. This action feeds sheets, one by one, into the stacker section. The rollers are driven by FNS motor M1 (FNS conveyance motor) via a timing belt.

Sheets are stacked as cover sheets onto paper from the copier, and the results are then processed by the FNS (single staple, double staple, or booklet generation).


Feed Roller
Paper Feed Roller
M201 (Sheet Tray Motor)
Sheet Tray
Double-Feed prevention Roller

2. Manual Sheet Feeding (offline operation)

M201 (sheet tray Motor) raises the sheet tray. SD201 (paper feed) and MC201 (paper-feed clutch) goes on, causing the paper-feed, feed, and double-feed-prevention rollers to turn. This action feeds all of the sheets from the sheet tray into the stacker section. The FNS carries out the required finishing (single stapling, double stapling, or booklet generation).


Feed Roller
Paper Feed Roller
M201 (Sheet Tray Motor)
Sheet Tray
Double-Feed prevention Roller

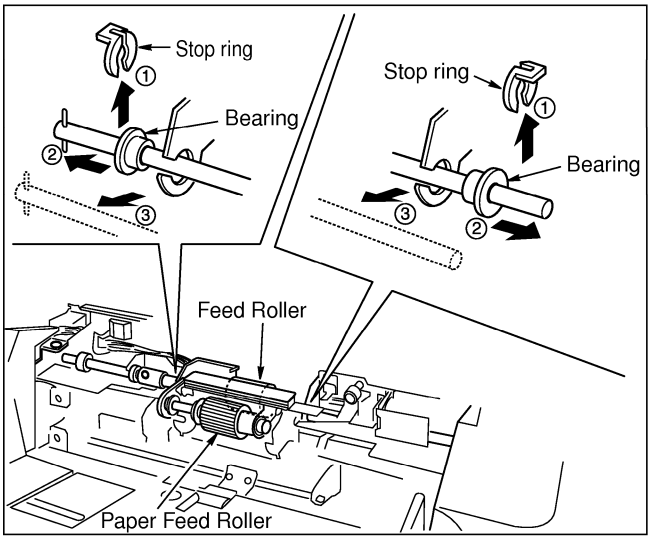
[3] Disassembly and Reassembly

1. Replacing a Paper-Feed Roller and Feed Roller

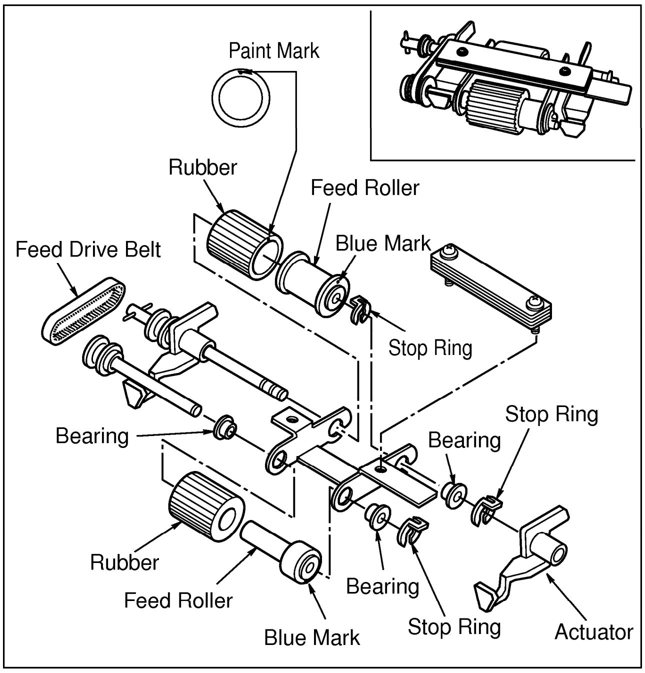
a. Procedure

(1) Remove the sub-tray and the cover A.

(2) Remove the 2 Stop rings, Then shift the left and right bearings outside, and remove the feed-roller unit.


Stop ring
①
Bearing
②
③
Stop ring
①
Bearing
③
②
Feed Roller
Paper Feed Roller

(3) Pull out three stop rings,the three bearings,the actactuator and two shaft of the feed-roller unit then remove each roller .


Paint Mark
Rubber
Feed Roller
Feed Drive Belt
Blue Mark
Stop Ring
Stop Ring
Bearing
Bearing
Rubber
Feed Roller
Blue Mark
Bearing
Stop Ring
Actuator

(4) Re-install the paper-feed roller and feed roller in the opposite sequence to removal.

CAUTION: Ensure that the mounting direction of the rubber is correct.

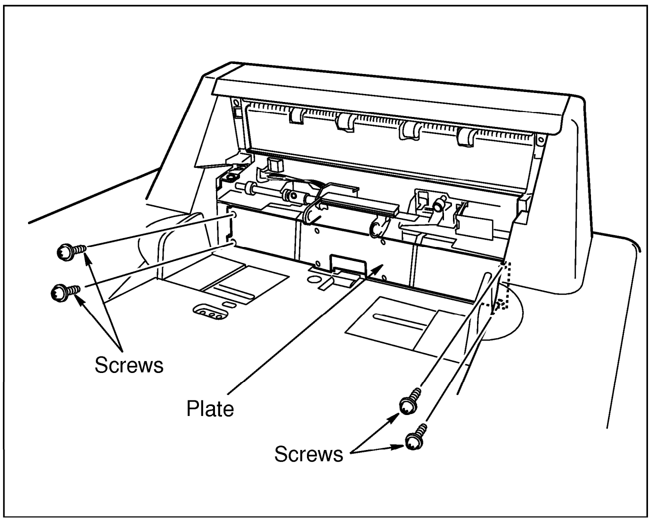
2. Replacing the Rubber,Double-Feed-Prevention Roller

a. Procedure

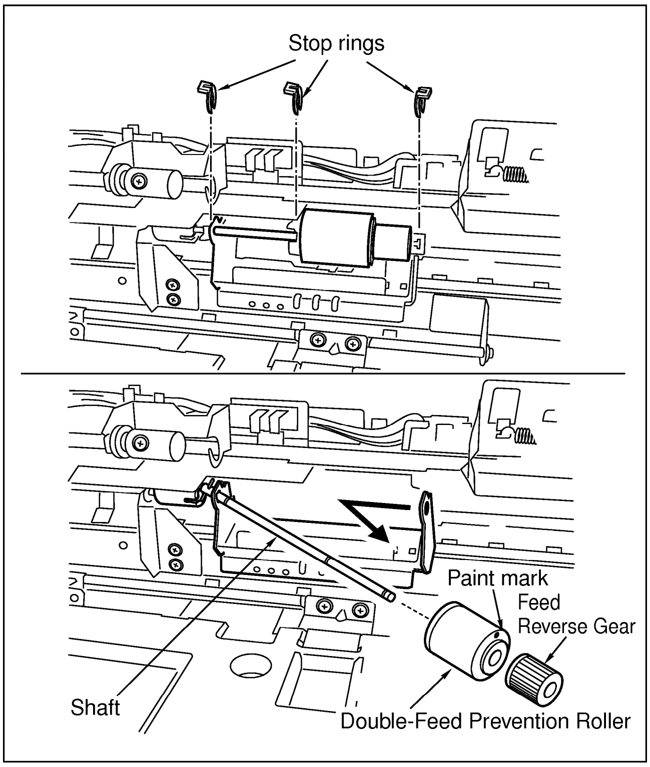
(1) Remove the cover A.

(2) Remove the feed-roller unit. Refer to the previous procedure for instructions on removing the unit.

(3) Remove the 4 set screws, Then remove the plate.


Screws
Plate
Screws

(4) Remove the 3 stop rings, then pull out the shaft, and remove the double-feed-prevention roller together with the feed-reverse gear.

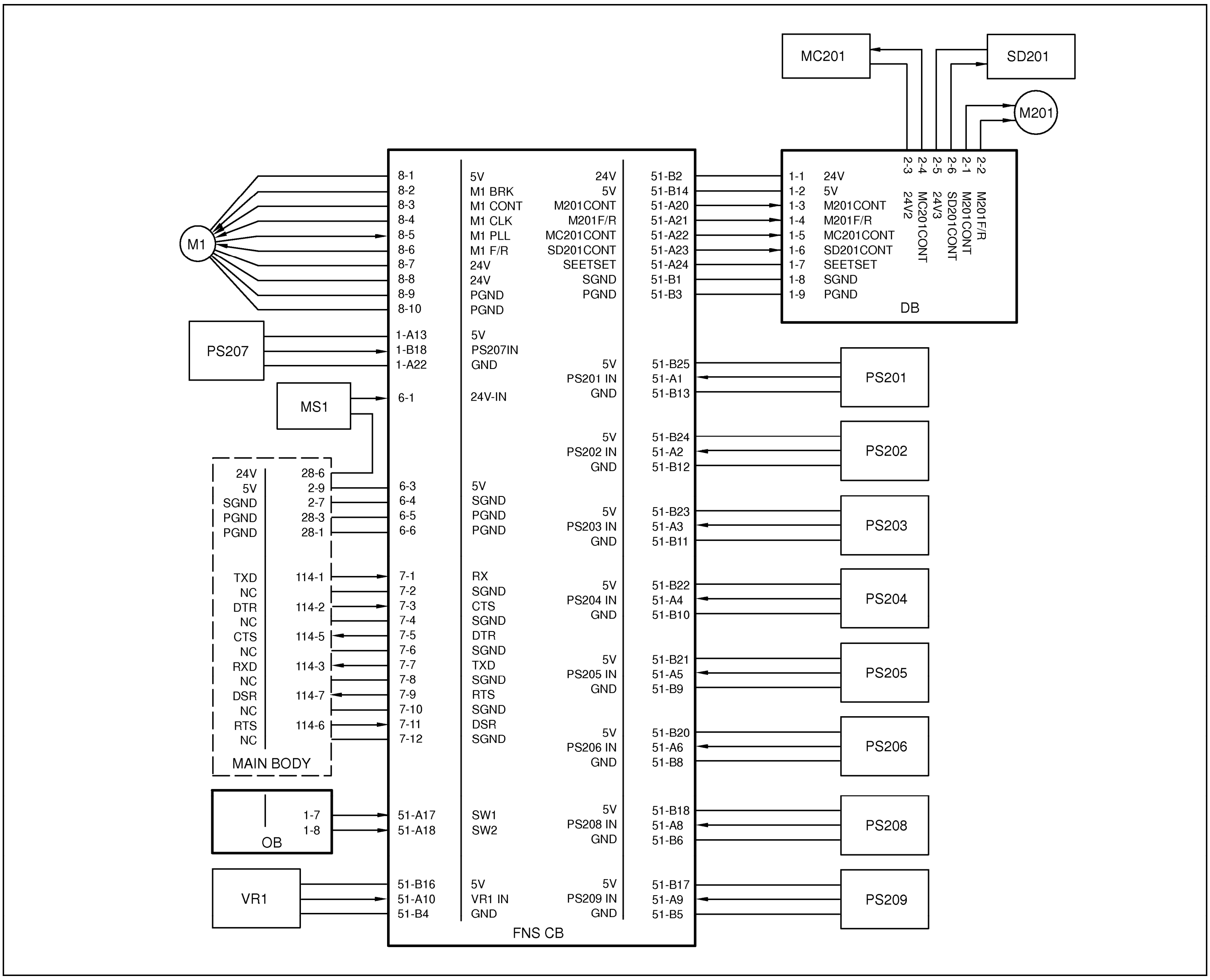

Stop rings
Paint mark
Feed Reverse Gear
Shaft
Double-Feed Prevention Roller

(5) Remove the rubber from the double-feed-prevention roller.

(6) Re-install the removed parts in the reverse sequence to removal.

CAUTION: Ensure that the mounting direction of the rubber is correct.

[4] Feed Control


MC201
SD201
M201
DB
FNS CB
M1
PS207
MS1
MAIN BODY
OB
VR1
PS201
PS202
PS203
PS204
PS205
PS206
PS208
PS209
24V
5V
SGND
PGND
M201CONT
M201F/R
MC201CONT
SD201CONT
SEETSET
M1 BRK
M1 CONT
M1 CLK
M1 PLL
M1 F/R
PS207IN
24V-IN
TXD
RXD
CTS
DTR
DSR
RTS
SW1
SW2
VR1 IN

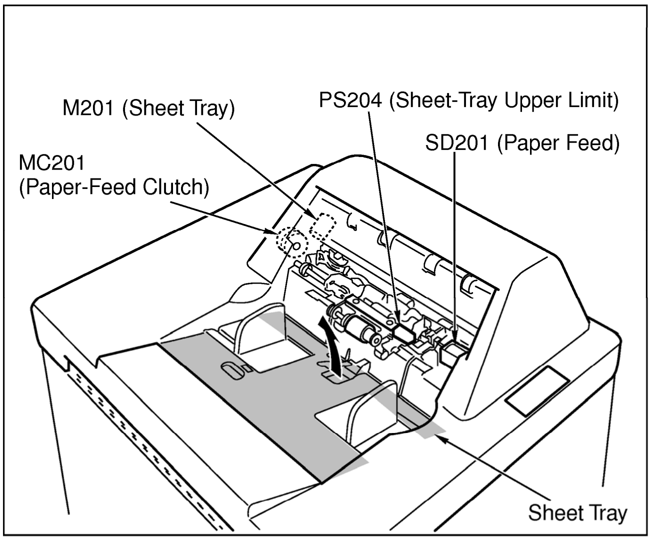
M201 (sheet tray) raises the sheet tray. SD201 (paper feed) and MC201 (paper-feed clutch) operate in accordance with the feed mode, thereby causing the feed, transmit, and double-feed-prevention rollers to turn, feeding sheets into the stacker section. The rollers are driven by FNS motor M1 (FNS conveyance). M201 and MC201 are controlled by the FNS CB (FNS control board) via the DB (drive board).

1. Operation

a. Auto-sheet feeding (online)

(1) The ON signal from the copier's START button causes FNS motor M1 (FMS conveyance) to come on. M201 (sheet tray) lifts the sheet tray up to the position where the tray activates PS204 (sheet-tray upper limit).

(2) SD201 (paper-feed) and MC201 (paper-feed clutch) come on in response to the CF feed request signal, feeding paper into the stacker.

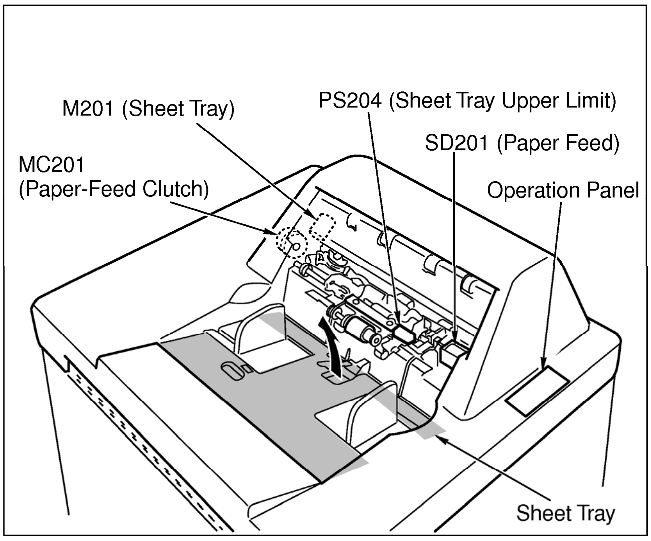

M201 (Sheet Tray)
PS204 (Sheet-Tray Upper Limit)
SD201 (Paper Feed)
MC201
(Paper-Feed Clutch)
Sheet Tray

b. Manual sheet feeding (offline)

(1) The ON signal from the PI-108 operation panel's START button causes FNS motor M1 (FMS conveyance) to come on. M201 (sheet tray) lifts the sheet tray to the position where the tray activates PS204 (sheet-tray upper limit).

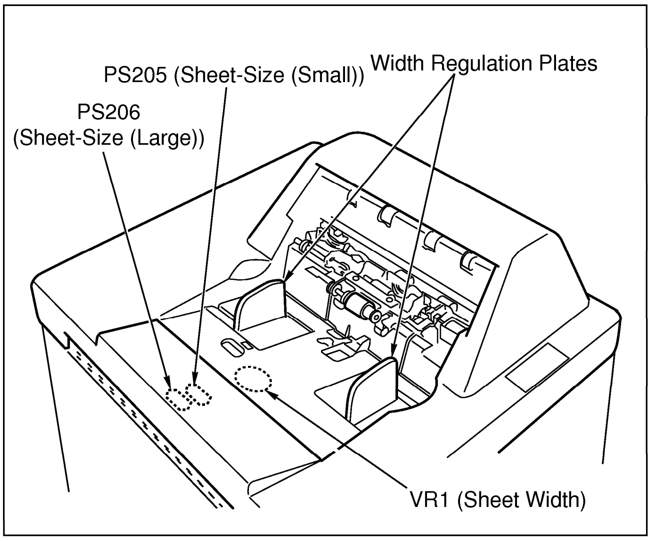
(2) SD201 (paper-feed) and MC201 (paper-feed clutch) come ON, feeding all paper from the sheet tray into the stacker.

(3) The FNS carries out the required processing (stapling or booklet generation).


M201 (Sheet Tray)
PS204 (Sheet Tray Upper Limit)
SD201 (Paper Feed)
MC201
(Paper-Feed Clutch)
Operation Panel
Sheet Tray

c. Detection of sheet size

VR1 (sheet width) detects the sheet width. Sheet length is detected by the combination of PS205 (sheet size/small) and PS206 (sheet size/large).



d. Sheet tray up-down

M201 (sheet tray) drives the raising and lowering of the tray. M201 is controlled by the FNS CB (FNS control board) via the DB (drive board).

2. Signals

a. Input signals

(1) TXD (Main-Body CB → FNS CB)
Serial data line; transmits operating status of the Main-Body CB to the FNS CB.

(2) DTR (Main-Body CB → FNS CB)
Request to send signal from the main body to the FNS.

(3) RTS (Main-Body CB → FNS CB)
Transmission acknowledgment signal from the main body to the FNS.

(4) PS201 IN (PS201 → RB → FNS CB)
Comes ON [L] when paper passage is detected.

(5) PS202 IN (PS202 → RB → FNS CB)
Sheet-tray empty detection.
[H]: Tray is empty (no paper).
[L]: Tray has paper.

(6) PS203 IN (PS203 → RB → FNS CB)
Comes ON [L] when the sheet tray is at its lower-limit position.

(7) PS204 IN (PS204 → RB → FNS CB)
Comes ON [L] when the sheet tray is at its upper-limit position.

(8) PS205 IN (PS205 → RB → FNS CB)
Paper-size detection.
[H]: Paper not detected
[L]: Paper detected

(9) PS206 IN (PS206 → RB → FNS CB)
Paper-size detection.
[H]: Paper not detected
[L]: Paper detected

(10) PS208 IN (PS208 → RB → FNS CB)
Paper-size detection.
[H]: Paper not detected
[L]: Paper detected

(11) PS209 IN (PS209 → RB → FNS CB)
Paper-size detection.
[H]: Paper not detected
[L]: Paper detected

(12) VRI IN (VR1 → RB → FNS CB)
Width detection (paper size in tray width direction).

b. Output signals

(1) TXD (FNS CB → Main-Body CB)
Serial data line; transmits FNS operating status to the Main-Body CB.

(2) DTR (FNS CB → Main-Body CB)
Request to send signal from the FNS to the main body.

(3) RTS (FNS CB → Main-Body CB)
Transmission acknowledgment signal from the FNS to the main body.

(4) M201 CONT (FNS CB → RB → M201)
M201 (sheet-tray) drive control signal.

(5) MC201 CONT (FNS CB → RB → MC201)
MC201 (paper-feed clutch) drive control signal.

(6) SD201 CONT (FNS CB → RB → SD201)
SD201 (paper-feed solenoid) drive control signal
[H]: OFF
[L]: ON

PI-108 ADJUSTMENTS

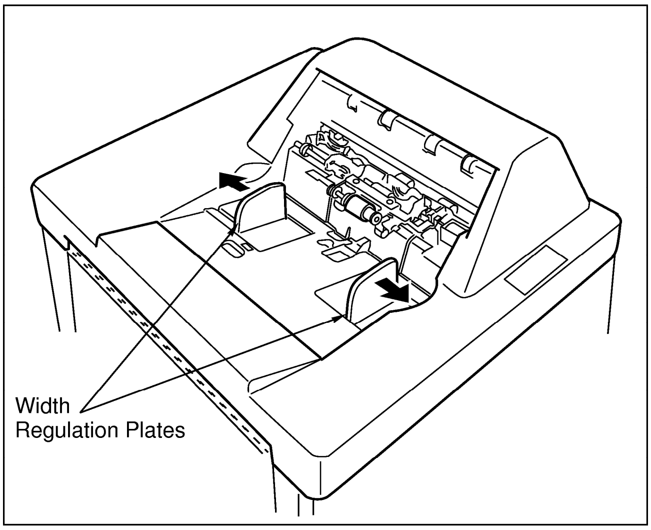
[1] Adjusting the Size of the Coversheet-Tray Width Regulation Plates

1. Preparation

(1) Install the coversheet tray (PI-108) on the finisher.
(2) Connect the finisher to the copier.
(3) Check whether all paper sizes are correctly detected.
(4) If one or more sizes are not correctly detected, carry out adjustment as described below.

2. Adjustment procedure

(1) Hold down keys [3] and [6] on the copier's numeric keypad while setting the main switch ON. The copier will enter finisher-adjustment mode.
(2) Select [[6] Finisher Adjust] at the copier display.
(3) Again at the copier display, select [[4] Adjust coversheet tray size].
(4) Push the width regulation plates out to maximum width.



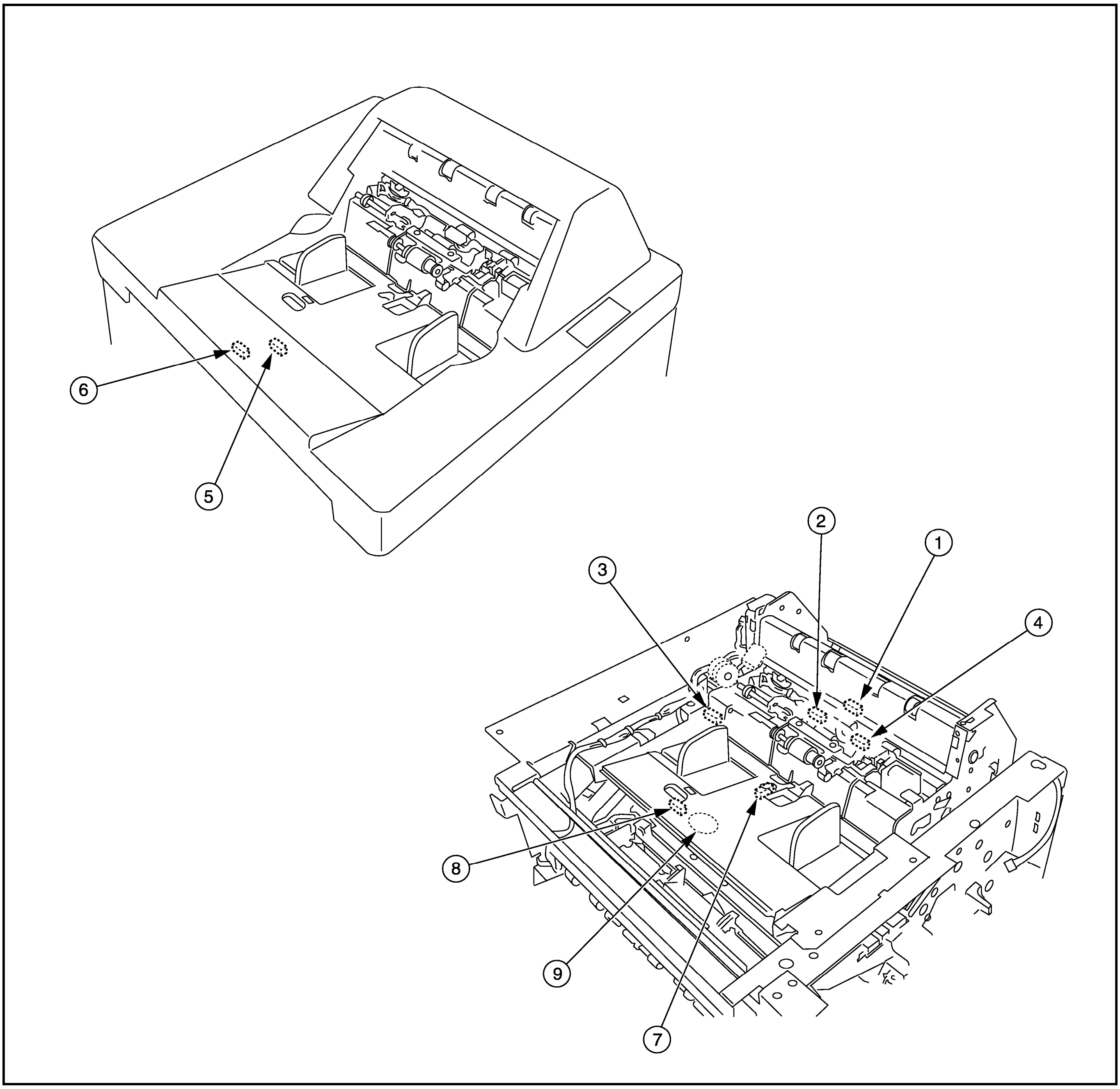
(5) At the screen, select [YES].
(6) Confirm that the following message is displayed, indicating that adjustment is finished.

```
Adjust coversheet tray size
----Adjustment completed.----
```

2

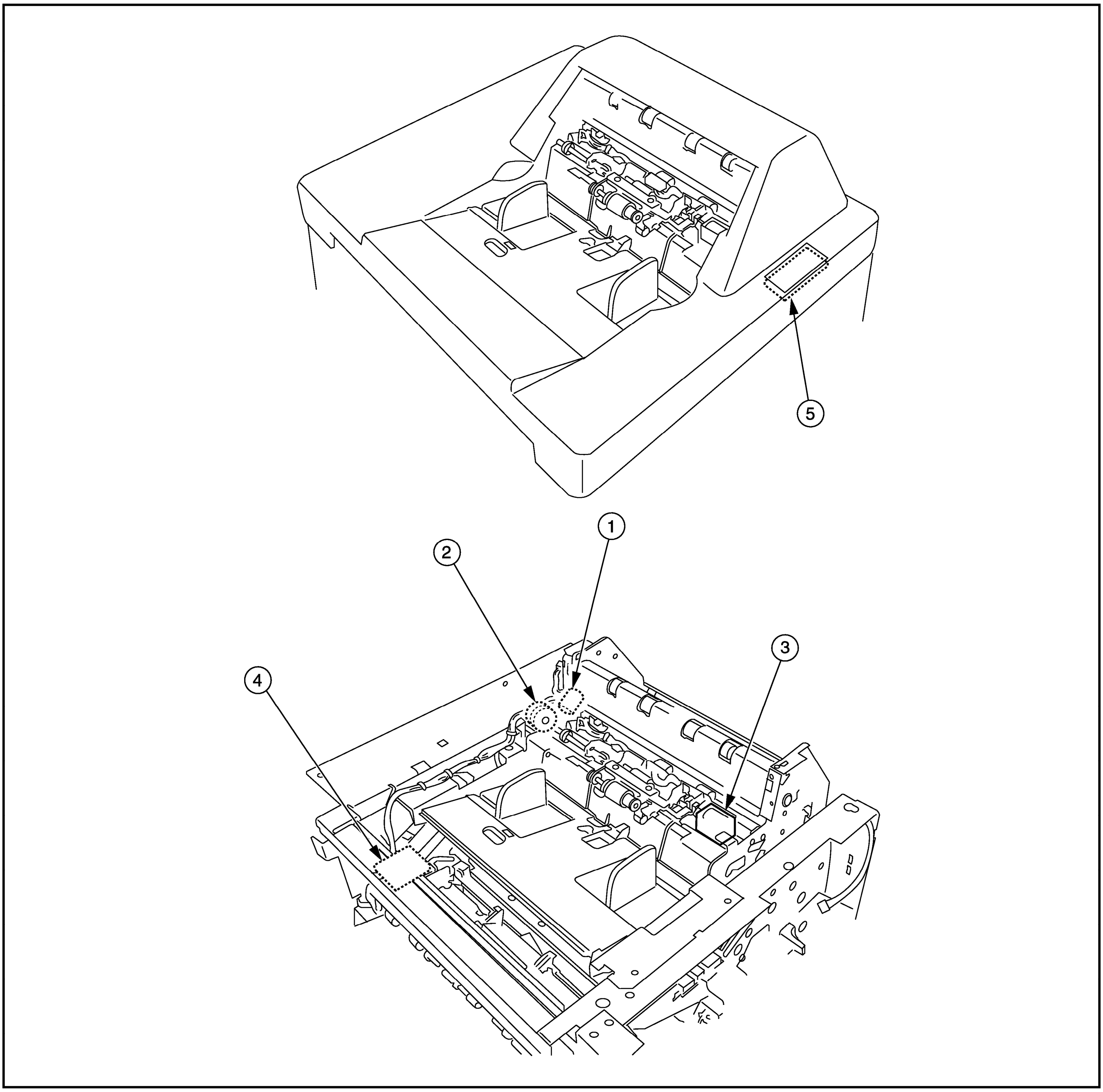
DIAGRAM

PI-108 ELECTRICAL PARTS LAYOUT DRAWING



1. Sensors

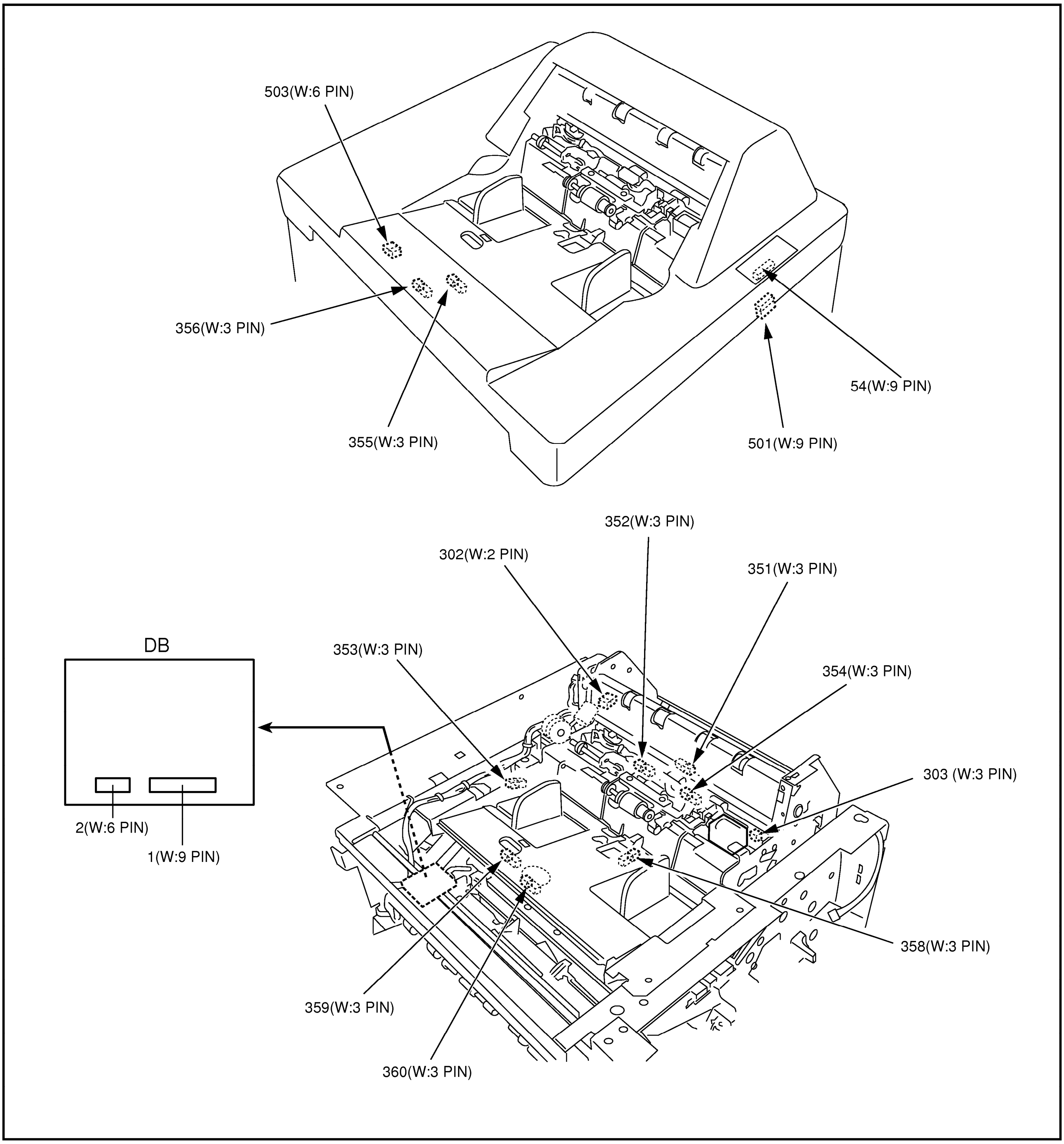
①	PS201	Sheet passage PS
②	PS202	No-sheet PS
③	PS203	Sheet-tray lower-limit PS
④	PS204	Sheet-tray upper-limit PS
⑤	PS205	Sheet-size PS (small)
⑥	PS206	Sheet-size PS (large)
⑦	PS208	Sheet set PS
⑧	PS209	Pre no-paper PS
⑨	VR1	Sheet-width VR



2. Motor, Clutch, Solenoid, Board

①	M201	Sheet-tray motor
②	MC201	Paper-feed clutch
③	SD201	Paper-feed solenoid
④	DB	Drive board
⑤	OB	Operation board

PI-108 CONNECTOR LAYOUT DRAWING

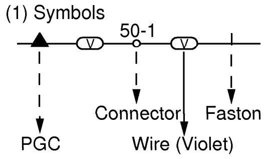

503(W:6 PIN)
356(W:3 PIN)
355(W:3 PIN)
54(W:9 PIN)
501(W:9 PIN)
352(W:3 PIN)
302(W:2 PIN)
351(W:3 PIN)
DB
353(W:3 PIN)
354(W:3 PIN)
303 (W:3 PIN)
2(W:6 PIN)
1(W:9 PIN)
358(W:3 PIN)
359(W:3 PIN)
360(W:3 PIN)

PI-108 OVERALL WIRING DIAGRAM

[Reading the Diagrams]

1. Signal states reflect condition in which system is in normal idling state with the main switch ON.
2. Symbols used in circuit diagrams are as follows.

(1) Symbols



50-1
V
V
PGC
Connector
Faston
Wire (Violet)

(2) Color Codes

BN	: Brown	B	: Blue
R	: Red	V	: Violet
O	: Orange	GY	: Gray
Y	: Yellow	W	: White
GN	: Green	BK	: Black
LB	: Light blue	P	: Pink

Example: (Y/GN) denotes a green wire with a yellow stripe.

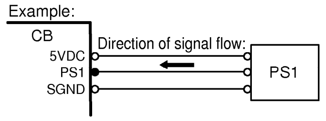
(3) (RC) denotes a ribbon cable.

(4) Signal Flow

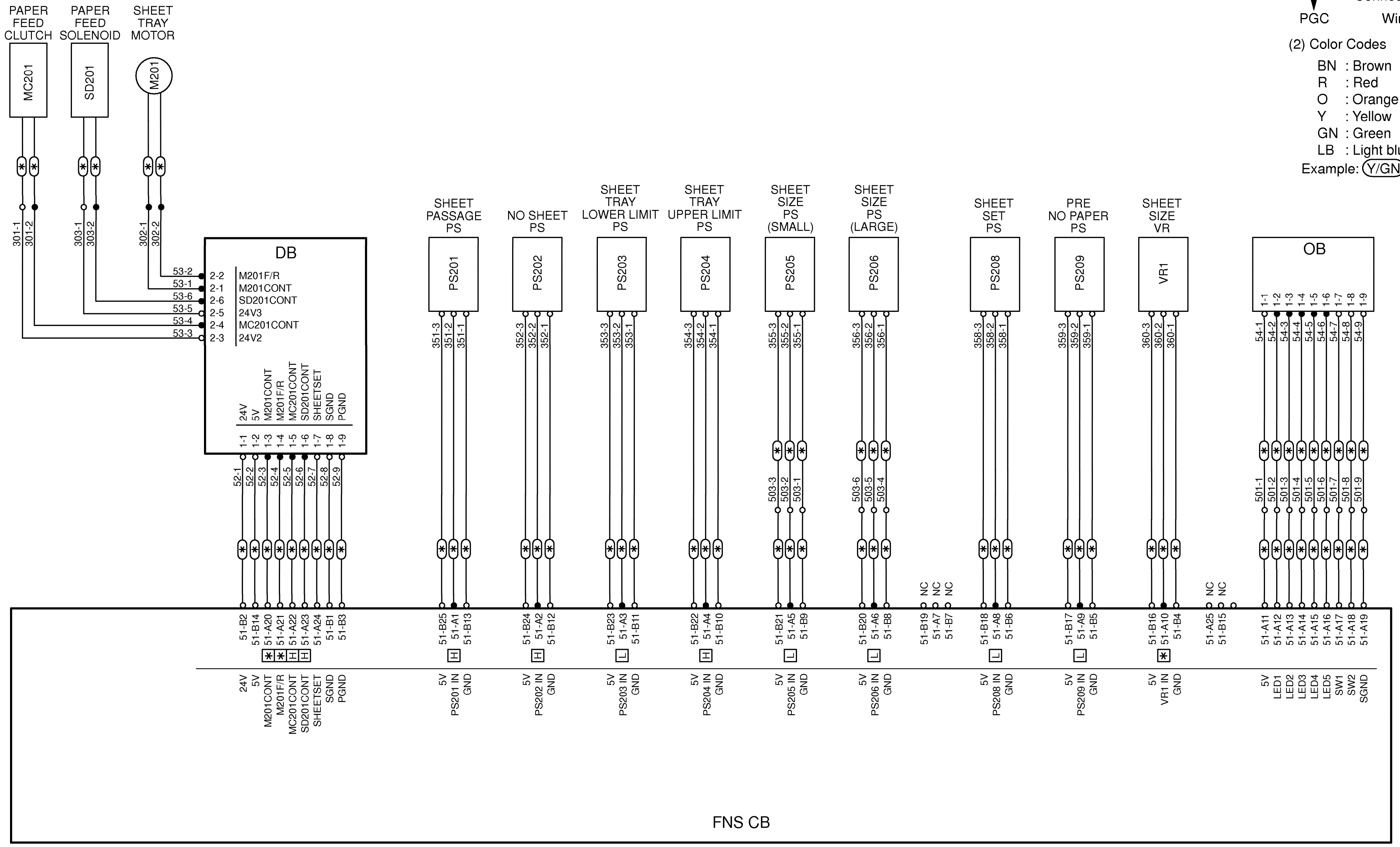
Connectors are indicated by circle (○) or (●).

The dark circles indicate the direction of the signal flow.

Example:

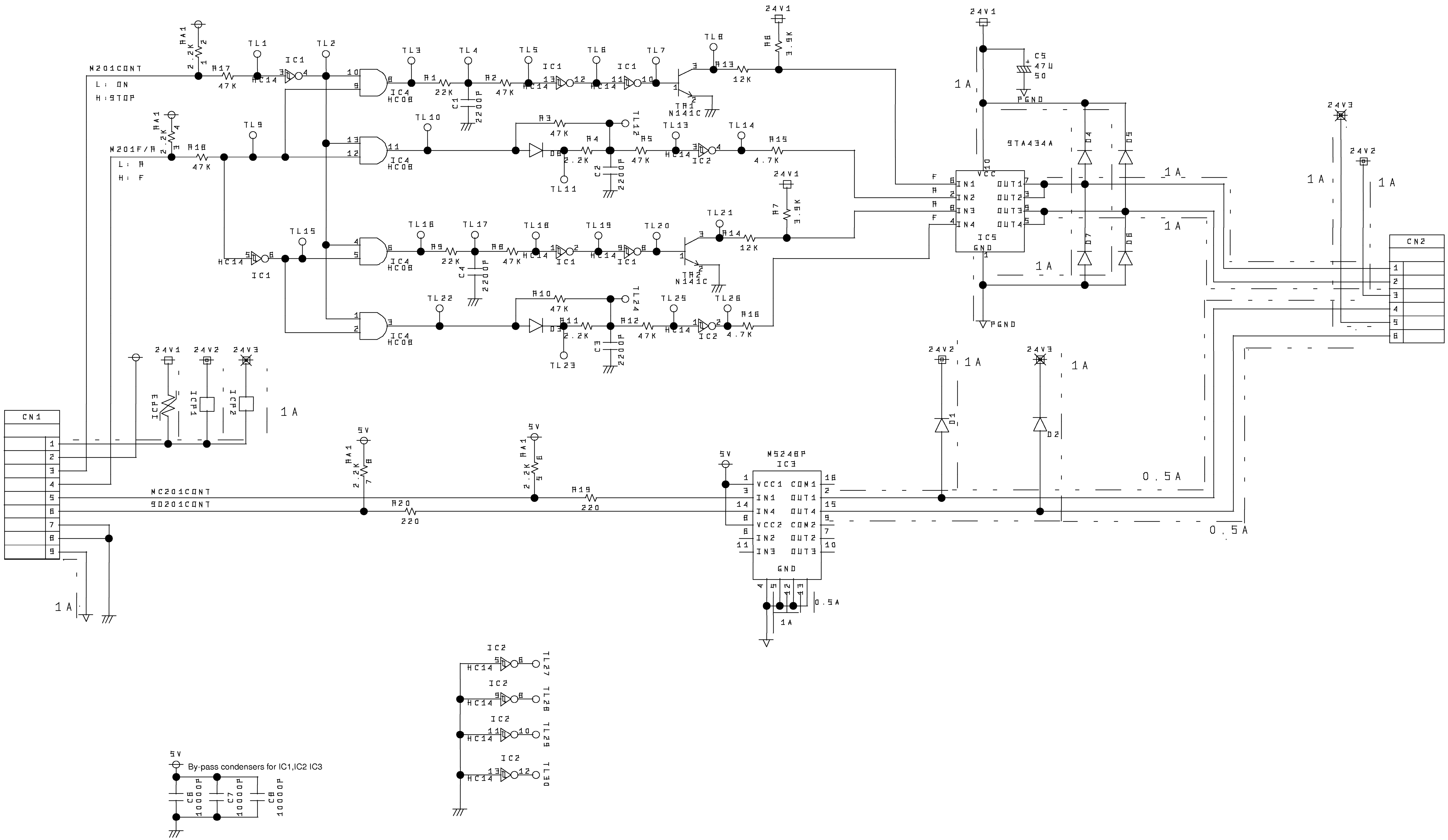


CB
5VDC
PS1
SGND
Direction of signal flow:
PS1



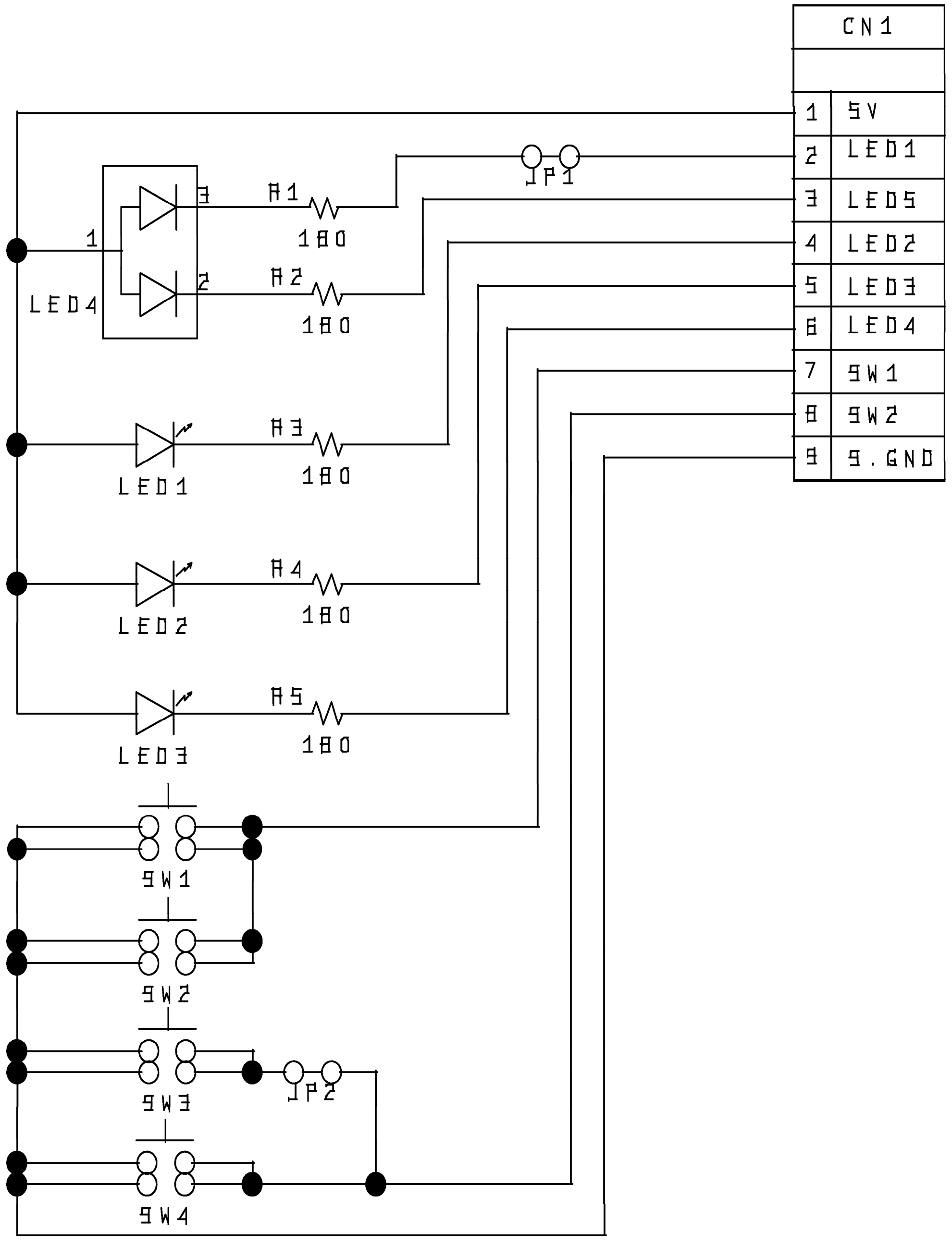
PAPER FEED CLUTCH
MC201
PAPER FEED SOLENOID
SD201
SHEET TRAY MOTOR
M201
301-1
301-2
303-1
303-2
302-1
302-2
DB
53-2 2-2 M201F/R
53-1 2-1 M201CONT
53-6 2-6 SD201CONT
53-5 2-5 24V3
53-4 2-4 MC201CONT
53-3 2-3 24V2
1-1 24V
1-2 5V
1-3 M201CONT
1-4 M201F/R
1-5 MC201CONT
1-6 SD201CONT
1-7 SHEETSET
1-8 SGND
1-9 PGND
52-1 52-2 52-3 52-4 52-5 52-6 52-7 52-8 52-9
SHEET PASSAGE PS
PS201
351-3 351-2 351-1
NO SHEET PS
PS202
352-3 352-2 352-1
SHEET TRAY LOWER LIMIT PS
PS203
353-3 353-2 353-1
SHEET TRAY UPPER LIMIT PS
PS204
354-3 354-2 354-1
SHEET SIZE PS (SMALL)
PS205
355-3 355-2 355-1
503-3 503-2 503-1
SHEET SIZE PS (LARGE)
PS206
356-3 356-2 356-1
503-6 503-5 503-4
SHEET SET PS
PS208
358-3 358-2 358-1
PRE NO PAPER PS
PS209
359-3 359-2 359-1
SHEET SIZE VR
VR1
360-3 360-2 360-1
OB
1-1 1-2 1-3 1-4 1-5 1-6 1-7 1-8 1-9
54-1 54-2 54-3 54-4 54-5 54-6 54-7 54-8 54-9
501-1 501-2 501-3 501-4 501-5 501-6 501-7 501-8 501-9
NC NC NC
NC NC
51-B2 51-B14 51-A20 51-A21 51-A22 51-A23 51-A24 51-B1 51-B3
✱ ✱ H H
24V 5V M201CONT M201F/R MC201CONT SD201CONT SHEETSET SGND PGND
51-B25 51-A1 51-B13
H
5V PS201 IN GND
51-B24 51-A2 51-B12
H
5V PS202 IN GND
51-B23 51-A3 51-B11
L
5V PS203 IN GND
51-B22 51-A4 51-B10
H
5V PS204 IN GND
51-B21 51-A5 51-B9
L
5V PS205 IN GND
51-B20 51-A6 51-B8
L
5V PS206 IN GND
51-B19 51-A7 51-B7
51-B18 51-A8 51-B6
L
5V PS208 IN GND
51-B17 51-A9 51-B5
L
5V PS209 IN GND
51-B16 51-A10 51-B4
✱
5V VR1 IN GND
51-A25 51-B15
51-A11 51-A12 51-A13 51-A14 51-A15 51-A16 51-A17 51-A18 51-A19
5V LED1 LED2 LED3 LED4 LED5 SW1 SW2 SGND
FNS CB

PI-108 DRIVE BOARD CIRCUIT DIAGRAM



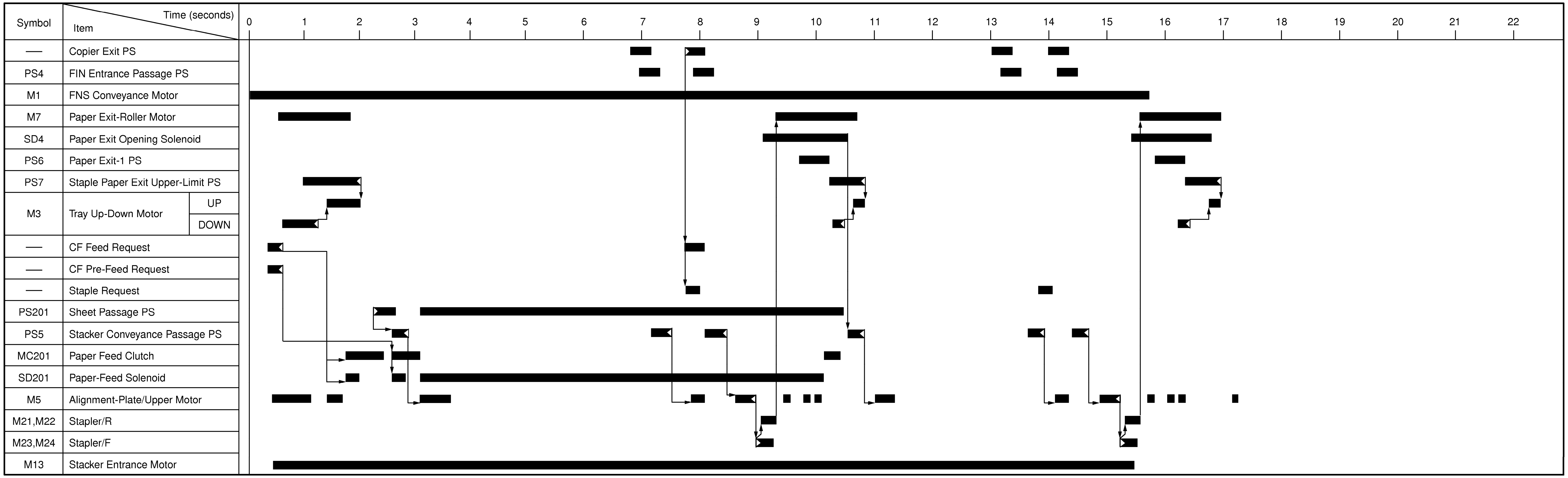
N201CONT
L: ON
H: STOP
N201F/R
L: R
H: F
RA1 2.2K
R17 47K
R18 47K
TL1
TL2
TL3
TL4
TL5
TL6
TL7
TL8
TL9
TL10
TL11
TL12
TL13
TL14
TL15
TL16
TL17
TL18
TL19
TL20
TL21
TL22
TL23
TL24
TL25
TL26
TL27
TL28
TL29
TL30
IC1 HC14
IC2 HC14
IC4 HC08
R1 22K
R2 47K
R3 47K
R4 2.2K
R5 47K
R6 3.9K
R7 3.9K
R8 47K
R9 22K
R10 47K
R11 2.2K
R12 47K
R13 12K
R14 12K
R15 4.7K
R16 4.7K
R19 220
R20 220
C1 2200P
C2 2200P
C3 2200P
C4 2200P
C5 47U 50
C6 10000P
C7 10000P
C8 10000P
D1
D2
D3
D4
D5
D6
D7
D8
TR1 N141C
TR2 N141C
24V1
24V2
24V3
5V
ICP1
ICP2
ICP3
1A
0.5A
STA434A
IC5
VCC
IN1
IN2
IN3
IN4
OUT1
OUT2
OUT3
OUT4
GND
PGND
N5248P
IC3
VCC1
VCC2
COM1
COM2
CN1
CN2
NC201CONT
SD201CONT
By-pass condensers for IC1,IC2 IC3

PI-108 OPERATION BOARD CIRCUIT DIAGRAM


CN1
1 5V
2 LED1
3 LED5
4 LED2
5 LED3
6 LED4
7 SW1
8 SW2
9 S.GND
JP1
R1
180
R2
180
1
2
3
LED4
R3
180
LED1
R4
180
LED2
R5
180
LED3
SW1
SW2
SW3
JP2
SW4

MC-Service

PI-108 TIMING CHART(AUTO-FEED [ONLINE],2-STAPLE,A4,2-PAGE ORIGINAL,2 COPIES)



MC-Service